Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL AND OTHER IMPROVEMENT.

VOL. 2. NEW YORK, JULY 17, 1847. NO. 43.

THE NEW YORK
SCIENTIFIC AMERICAN:
PUBLISHED WEEKLY.
At 128 Fulton Street, New York (Sun Building,) and 13 Court Street, Boston, Mass.
By Munn & Company.
The Principal Office being at New York.

TERMS:—$2 a year—$1 in advance, and the remainder in 6 months.
☞ See Advertisement on last page.

POETRY.

VERDICT OF THE POOR.

Sits a maid upon a stone,
Singing slow in under-tone;
Comes a man across a moor—
He is old, and lame, and poor.

"Riches are a glorious boon,
As is aught beneath the moon."
Thus the maid, upon the stone,
Singeth slow, in under-tone.

"Not for hoarding;—daily care
Dwells where hoarded riches are:—
Not for wasting;—sinful deed
Squanders what the wretched need.

"But for giving;—God above
Gives to all men in his love.
Hoard or squander—desperate sin
Thy sad heart hath drunken in."

Came the man across the moor—
He was old, and lame, and poor
And the maid upon the stone,
Spake him thus, in under-tone.

"Here is gold—the wretched feet
Miseries which the rich can heal."
But, abashed, he hangs his head,
Asking not another's bread.

"Heav'n hath daughters—daughters three,
And one's name is Charity;
She is fair, but more I prize
Her sister of the bandaged eyes.

"Mercy treads with glorious feet;"
Thus he makes her answer meet—
"She is fair, but most I prize
Her sister of the bandaged eyes.

"Industry will up and strive;
Idleness will never thrive;
Sluggard heart will lose its shame,
Begging alms in holy name.

"JUSTICE, for the young and old;
Give them *that*—not rich men's gold;
Age has won its right to rest;
Honest work is young man's quest.

"Justice, and no man is poor,
Though another owneth more."
Thus the old man made reply,
Taking naught of charity.

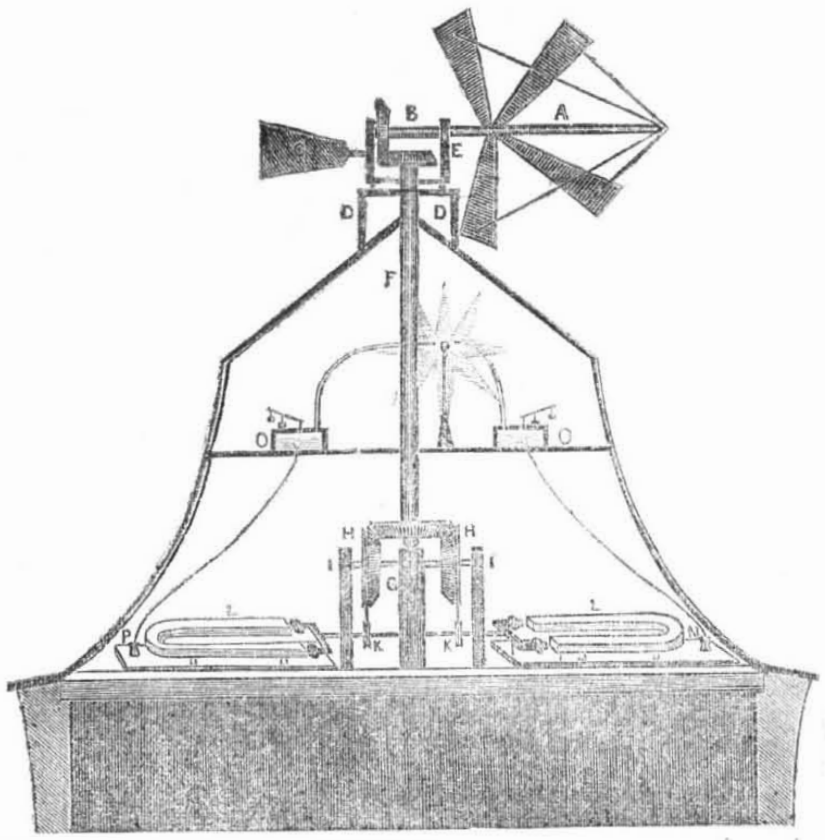
Comic Song for Young Ladies.

And do you really want mamma,
To know my lover's name?
It is too bad of you, mamma,
Indeed its quite a shame.
His name begins with W,
The second letter's A;
The next to this is L, mamma,
And then mamma, comes K.
And after K comes E, mamma,
There is yet one letter; well,
Letter the last is R, mamma,
That's all I have to tell.

"I never shot a bird in my life," said some one to his friend, who replied, "For my part I never shot anything in the shape of a bird, except a squirrel, which I killed with a stone, when it fell into the river and was drowned."

A pair of glossy Ibes have been killed near Cleveland, Ohio. This was the sacred bird of ancient Egypt.

ORTON'S DRUMMOND LIGHT.



The above cut represents a cheap and ingenious method for furnishing lighthouses with the Drummond Light. It is the invention of Mr. J. W. Orton, of Oxford, Chenango Co. New York.

EXPLANATION.—In the diagram an outline of the upper part of a common Lighthouse is represented, within which is a front perspective view of the apparatus. A, the wind mill, is mounted upon the horizontal circular cap E, which revolves by the regulator C on the platform D, to accommodate the direction of the wind. The vertical shaft F, supported by the fulcrum G, is terminated on each end by the horizontal bevel-gear wheels, one of which is driven by another gear wheel B, on the wind wheel shaft; and the other gearing with the wheels H H. The latter also perform the office of giving motion to the smaller ones K K, by means of a band passing from the circumference of one to that of the other. I I, are fulcrums to the axes of the wheels H H, and at the same time support the armatures of the magneto-electric machines L L. The negative electrodes of each machine are united at N, and the positive at P. The reservoirs O O, are nearly filled with water and furnished each with lever-valves in case the gases should generate too abundantly for the small orifice at at the termination of the two tubes. Hence the wind mill turned by the force of the wind will give a rotary motion to the shaft F, which in turn acting upon the multiplying wheels H H, will set in motion the armatures. Then since its polarity is continually increasing or diminishing whilst in motion, it is plain that a current of electricity will be constantly developed at N and P. The water, therefore, is decomposed by the electricity; and the two gaseous elements being ignited at the orifice and the flame directed on the carbonate of lime or zircon, will form the Drummond light. This light is distinctly visible at the distance of seventy miles.

Turn about's Fair Play.

At Walton, near Chesterfield, the other day, as a farmer was in the act of devouring an apple pudding, made by his servant maid, he suddenly discovered that he had something in his mouth more difficult of mastication than boiled apple: and it turned out to be the head of a mouse which had been boiled with the pudding. The girl, for her mischievous propensities, was chastised with the end of a rope. On the following day, the master went to his dinner as usual, and asked what she had cooked. She told him to "look in the pot." He did so, and saw nothing but the rope's end! "I had it for dinner yesterday," said the girl, "and it's only fair you should have it to-day."

Traits of the Hodmen.

"Och, murtheration!" exclaimed a hod-carrier, "I've got a piece of *morther* in me eye!"

"Morther, is it," replied his companion; "thin jist put in a piece of a brick-bat, and you'll have a *wall* eye iv it."

Mr. Webster told the people of Savannah, in his speech there, that the Massachusetts people must continue to be for their Southern friends "hewers of ice and coolers of water.

An Indian was questioned—"What is original sin?" He replied, "Laziness."

Novel Sport.

A race came off last evening about half-past 11 o'clock, between two "night-mares," both of them dark, for a purse of five shavings—heats best three in five, from the "stand," at the base of the *abdomen*, as far as the *thorax*. The race was well contested; "*Beans*" beating "Oysters" about the distance of two *vertebræ*. The "bottom" of *Oysters* was excellent, but *Beans* possessed superior *wind*. Large bets had been made, and and a fat fellow by the name of "Sour Stomach" held the *steaks*. When he found that *Beans* had won, he *threw them all up*, and mizzled in the direction of the druggist's. The friends of *Oysters* were *down in the mouth*, but they *shelled out* nobly.

Flattery.

Soon after Dr. Johnson issued his celebrated 'Rasselas,' a literary society of ladies appointed some of their number a committee to wait on him, and express their approbation of his work. They accordingly waited on him, and one of their number addressed him in a long speech of fulsome praise. He calmly sat waiting the conclusion of the speech, and then, turning to the committee expressed his acknowledgement by saying—Fiddle-de-dee my dears.

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 10th, 1847.

To James B. Conger, of Jackson, Tennessee, for improvement in Water Wheels. Patented July 10, 1847.

To Benjamin S. Benson, of Baltimore, Md. for improvement in Steam Engines. Patented July 10, 1847.

To William W. Hill, of Greenport, New York, for improvement in Ships Blocks. Patented July 10, 1847.

To Stephen Ustick, of Philadelphia, Pa., for improvement in Brick Moulding Machine. Patented July 10, 1847.

To Richard M. Hoe, of New York, for improvement in Printing Presses. Patented July 10, 1847.

To William F. Ketchum, of Buffalo, New York, for improvement in Reaping Machines. Patented July 10, 1847.

To Philo C. Curtis, of Utica, New York, for improvement in Rotary Steam Engines.—Patented July 10, 1847.

EXTENSION.

To Alexander Mitchell of Belfast, Ireland, for method of obtaining foundations, and of mooring ships, buoys and other floating bodies. Patented in England July 4, 1833 In the United States April 1, 1845. And extended 7 years from the expiration of the date of the English patent.

Thrilling Incident.

President Hitchcock, in a letter to the Amherst Express from Virginia, describing some coal mines in that state, relates the following semi-tragic anecdote:

Major W. related to us a very thrilling incident that took place in this vicinity some years ago, which he assured us was literally true. A hunter one autumnal evening, eagerly following in the chase, found himself sliding down into an old abandoned coalpit. But seizing upon the top of a bush as he slipped down the craggy sides, he hung dangling in the air over the black gulf, and felt conscious from his knowledge of the place, that if he fell he must drop at least 200 feet, and be dashed in pieces on the rocks beneath. He struggled in vain to regain his foot hold: he heard the cry of his fellow hunters and of the hounds as they bounded past.—He shouted with all his might and the forest returned the echo, but no voice of rescue came with it. The wind whistled around him and the moon shone upon his face, but they brought him no relief; his strength rapidly failed, he thought in agony of his family and friends, but he must die an awful death, and even his mangled body never be discovered. His mind became bewildered; his muscles gave out and down he went—down—down—swifter and swifter, nor struck the bottom till he had reached the enormous depth of *six inches*.

Remarkable Properties of Guano.

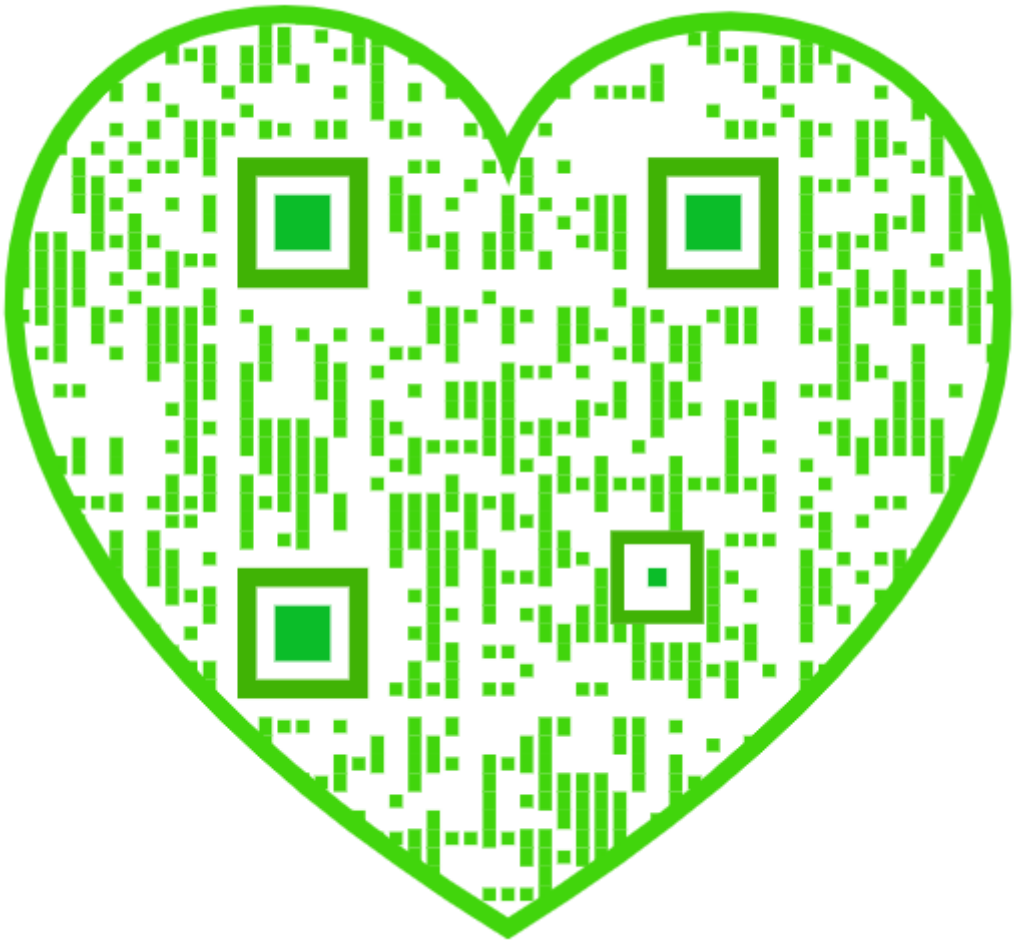
A native of "Down East," describing with characteristic exaggeration the remarkable properties of Guano, as a promoter of vegetation, said, that a few honrs after planting cucumber seeds, the dirt began to fly and the vines came up like a streak; and although he started off at the top of his speed, the vines overtook and covered him. And on taking out his knife to cut the "darned things" he found a large cucumber gone to seed in his pocket!

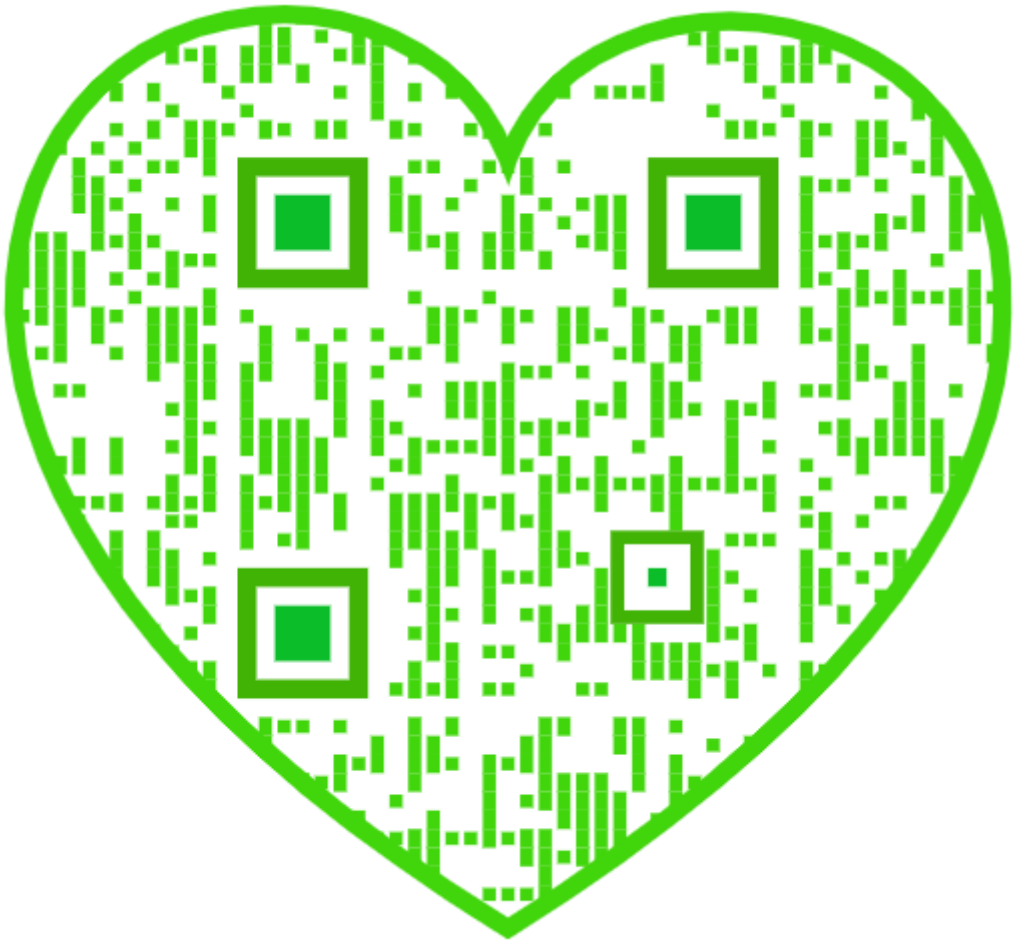
Wont believe it.

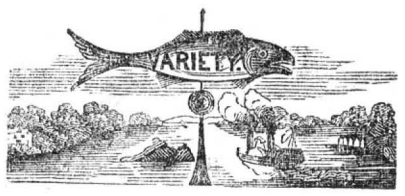
Its all very true, Mr. McGongal. but then its no use of talking to me about it, as I wont believe a word of the truth of it.

A chap was told yesterday that his courage had fallen from his head to his heels, and being desirous to enlist, he stood on his head about two hours to make it fall back again.

© 1847 SCIENTIFIC AMERICIAN, INC







New Mode of Water Power.

A gentleman proposes to use the waves on Swansea Beach, England, for the purpose of raising water by the force of them through a pipe placed on an incline, in which shall be placed one or more valves like those used in a force pump. He says that he has seen water thrown by the force of the waves through the fissures of rocks, more than thirty feet above its level. The plan, therefore, is a good one and simple. Those who live on the banks of lakes Erie and Ontario and on the small lakes scattered throughout our country, have but to erect log pipes with valves at the bottom to support a column of water for the waves to act upon, and there can be no doubt from the force they exert, (and which we have often witnessed with feelings of awe,) but that a stream of water may be thrown into a reservoir twenty feet above the level of the lake.

Steam Ice Cream Company.

We have in our city the American Patent Steam Ice Cream Co., which, with an engine of ten horse power, is in full operation, manufacturing every description of this much sought for article in the summer months, from the quality which is retailed to the newsboys for a cent a glass full, including the use of a spoon, to the costly quality which can be seen on the tables of the "upper ten."

Anthracite Coal used for Locomotives.

We have learned that a Mr. Winans, of Baltimore, has made several trips over the Reading Railroad with the use entirely of anthracite coal instead of wood. The trips were as well made as by the engines burning wood. Mr. Winans' engines have been long successfull on the Ohio and Baltimore Railroad, burning the bituminous coal. This improvement will conduce much to economy in fuel, as wood is so much higher in price than coal.

Early Rising.

The difference between rising every morning at 6, and 8, in the course of forty years, amounts to 20,000 hours, or 8 years, 121 days and 10 hours, which will afford eight hours a day for exactly ten years; so that it is the same as if ten years were added to a man's life, in which he could command eight hours each day for the cultivation of his mind and heart.

A Loving Hug.

A newly married couple from down east were taking their nocturnal repose, and talking over matters and things, when a heavy thunder-clap and vivid flashes of lightning filled them with terror and fearful apprehension. Suddenly a tremendous crash caused the loving couple to start as though they had received an electric shock; Jonathan throwing his arm around his dear, exclaimed, 'hug up to me Liz, let's die like men'

An Old Engine.

There is now in full work, at the Tredegar Old Mill Iron Works, a steam engine which was erected by Boulton and Watt, upwards of 40 years ago, and is now nearly as good as ever. A few weeks ago it turned out, between one o'clock on a Monday morning and eleven o'clock on the following Saturday night, no less than 566 tons of rails, rolled and finished, and 289 tons of puddled bars—total, 855 tons.

Spendid Car.

The Baltimore and Susquehanna Railroad Company have just placed a new passenger car on the road, of a very splendid description The body is of a dark claret color highly finished, and the interior is splendidly furnished with curtains of crimson cut velvet. This car has been manufactured entirely at the shops of the company, under the management of Mr. Millholland.

Large Bell.

The largest bell ever cast in England, has lately arrived at Montreal. It is for a new cathedral, and weighs 25 tons.

Iron works and Agriculture of Tennessee.

An official report to the Legislature of Tennessee sets down the capital emyloyed in the iron business at $4,100,000, and the annual products at the same amount. Three-fourths of this capital are employed in Middle Tennessee. On the Cumberland River, near Nashville, there are "21 blast furnaces, 11 forges, and 3 splendid rolling mills, which yield annually about $800,000. On the Tennessee river there are 12 furnaces and 8 forges and bloomeries, which produce about 180,000 tons annually. According to a letter addressed by V. K. Stevenson, Esq. to the Hon. John C. Crlhoun, we learn that the agricultural products of Tennessee are in value equal to $57,551,820; while those of Ohio are only $57,890,300, and of New York $57,685,400, showing Tennessee to be the third State in the Union in productive wealth.

Horse Awning.

A few days ago a carman was observed in the Bowery, driving a horse, over which was erected an awning, supported by a frame attached to the shafts; thus allowing a free circulation of air between the shade and the animal.

He is surely a humane man, that forgetteth not the fate of the brute.

The Mechanics' Association in Richmond.

The Mechanics of Richmond have recently formed an Association for their mutual benefit and advantage. In speaking of such Associations, the Richmond Republican speaks of the Institution in the most flattering terms. We rejoice to see our mechanics waking up to a true sense of their importance and seeking by the power of knowledge, that elevation so much to be desired.

Telegraph Lines.

The Magnetic Telegraph Lines established in the United States, worked on Morse's plan, comprise an aggregate distance of 1575 miles. The lines under contract and in course of construction comprise 4974 miles—making an aggregate of complete and unfinished lines of 6549 miles.

Cheap Travelling.

The fare from Buffalo, N Y. to Chicago, Illinois, in first class steamboats, or floating palaces,' via the Lakes,—a distance of 1000 miles—is only $8; the passenger being found every thing, and a continuous *concert of music* to boot!

The Lancaster Cotton Factory, Pa.

This new establishment contains 140 looms, and makes in one day 158 pieces of muslin, of 35 yards each, equal to 5,880 yards. Pretty good, for a day's work.

Tonnage of the United States.

The Tonnage of the United States on the 30th September last, was 2,592,085. The tonnage of England is 3,000,000. We'll soon catch up with England.

Sawing Planks.

The Steam Mill of Mr. Leidy, near Eaton, Ohio, sawed in 13 hours, one day week before last, 4,960 feet of plank. Well done.

Just Punishment.

A man in Essex county, N. J., was lately fined fifty dollars and sent to the State prison for one year for mutilating fruit trees.

Cotton in France.

The consumption of cotton, in France, in the first four months of 1846, was 43,254,000 lbs.; in the corresponding period of this year, 23,000,000 lbs.

A Blue Offer.

A blue Dahlia is so much wanted by the Dublin and Edinburgh Horticultural Societies, that the former has offered ten thousand, and the latter five thousand dollars for a single specimen.

A Donation.

Samuel Willlistons Esq., of Easthampton, has made another donation of $30,000 to Amherst College, and Mr. Hitchcock, of Brimfield $40,000; both for professorships.

Paris contains 989,000 inhabitants, besides 70,000 foreigners, of whom 25,000 are English residents

Home Compendium.

The Chinese Junk, so much talked of and so long expected, has at length arrived in our city. There are 40 native Chinese on board as part of her crew. It is said that the absence of small feet in our females, have given them an exceedingly poor idea of our taste for female beauty, and they consider that our affection cannot be much for "dear woman" when it is bounded by a single wife. We guess their wives find them to be *Tartars*.

There is much controversy in our city papers regarding the impurity and unhealthiness of swill milk. There is one swill Dairy in our city with 2000 cows. There is also much discussion regarding the weight of Baker's bread.

The Academy of Medicine met in this city last week, and the report of a committee appointed to investigate into the subject of typhus fever, reported that the principal cause of said fever was bad food, bad ventillation, and filth in emigrant vessels. It was stated that the worst ships were British. This is not very flattering to the punctuality and zeal of British magistrates who are appointed at every port for the purpose of seeing that each emigrant has a certain supply of provisions. The whole number of deaths from typhus fever from Jan. 2d to June 26th, in this city and all the hospitals was stated to have been 570—not a very large amount after all. 947 passengers on board of vessels coming to this port have died on their passage.

A House of Industry has been instituted in this city on the corner of second street and 1st Avenue. Gerritt Smith has subscribed $500. It will accommodate 70 persons, and is under the control of the Moral Reform Society.

The great Chicago Convention for the ostensible purpose of improving the navigation of our lakes and rivers, is now in session. It is composed of the leading politicians of the country.

Advice to Young Men.

The associations which young men are apt to form in large and growing cities, result in disgraceful and melancholy ends.—Bad company is the pest of society, and while it ruins thousands, it likewise brings pain and misery to many a fond and affectionate parent. Young men who are easily weaned from their once loved homes, must lack firmness of mind, and cannot be well acquainted with the deceits of the world; would they but listen to the voice of experience, and be more willing to obey the wishes of their fathers, bitter remorse would be a stranger indeed to their abode, and joy and comfort would reign in its stead. It is surprising how soon young men become infatuated with the doings and sayings of persons of doubtful character, knowing as they do, that such beings are never respected where good morals predominate; and nothing is more painful to behold, than a youth entering the haunts of crime, fearing no one, and ridiculing the admonitions of his virtuous friend; inevitable ruin is his reward; an early grave his portion.

Death of Lieutenant General Sir Colin Campbell.

This brave officer died in London on the 13th ult. He was a native of Argylshire, Scotland, and rose (we believe) from the ranks, through his great merit. He was born in 1777—served during the war in Spain, and commanded the Royal Scots at Waterloo. He was Governor of Nova Scotia, of Portsmouth, and of Ceylon, and leaves six sons and daughters.

This is the General that commanded the van of the British army when it entered France, under Wellington from Spain, and who refused to let the baggage of the Commander-in Chief pass until the whole division had got safely over the river.

A Large Raft.

A raft, from Canada, *nine hundred feet* in length, 39 feet in width, and drawing 3 feet water, was towed into Buffalo a few days since. The raft was composed of spars and pine saw logs, upon which was 170,000 feet of sawed pine lumber.

Amusements in Boston.

Three girls cowhided a young man, the other evening, in Boston.

Inventor's Claims.

It is our intention, after this, to publish regularly, as soon as received, the important claims of all inventions, and we here present those claims which have been issued since the 1st of July The list of Patents, however, will still be published, independent of this, as it is most important to have them made known as soon as granted.

Water Wheels.

Invented by B. Conger, of Madison county, Tenn. Patented 10th July, 1847 No. 5184 What he claims as his improvement and secures by Letters Patent is, constructing a wheel and shutes, having buckets on vanes with the top part cycloidal and the bottom part plain, placed between two concentric rings, using one-half of the cycloid, or nearly so, commencing at or near the curb for the top of the bucket, and making the plain part as tangent to the vertex as described and set forth.

Steam Engine.

Invented by Benjamin S. Benson, of Baltimore, Md. Patented July 10th, 1847. No. 5185. What he claims as his invention and secures by Letters Patent is, placing a cylinder or cylinders at any distance from the axis of their motion, substantially as described, when this is combined with the connecting of the piston or pistons with the arm or arms, or their equivalent, of a shaft or its equivalent the axis of motion of which makes an angle less than a right angle with the line of the axis of motion of the cylinder or cylinders substantially as described.

Ship Blocks.

Invented by Wm. H. Hill, of Greenport, N. Y. Patented 10th July, 1847, No. 5186. He does not claim to have invented Blocks in which the sheave is suspended by a pin through metal straps that are in contact with the ropes when in use; and having fifteen years ago, made blocks with straps fitted similar to those herein described, but without the metal head piece or cap, and in eliptical shells, he does not claim such mode of fitting straps alone, nor does he claim to have invented the making blocks shells in parts that are melted together.

But what he does claim as new, and of him invention, and secures by Letters Patents of the United States, is the forming the cheeks of the blocks circular, with rebates to receive the flanches of a metal head piece or cap, constructed with flanches to fit the rebates, and with a concave segmental grove, whose highest part inside shall be above or in line with the top of the wood shell, thereby making a circular shell receive a larger sheave than the ordinary eliptical shell of the same length can usually do; and he claims the combination threwith, of metal straps passing through the metal head piece, and into mortices in the cheeks of the shell instead of into groves, on the inner faces of the cheeks, the straps having holes to receive the pin of the sheave, and mode of forming, constructing and combination being substantially as described and shown.

Riot at Oswego.

A serious riot occurred at Oswego on Monday last. The combatants were several ship crews of American and British vessels, and the fight lasted some two or three hours. Many were badly injured. The troops were called out, and succeeded in quelling the disturbance

Wool at Canandaigua.

Considerable quantities of this important staple still continue to arrive in that village, and fair prices are paid for it—ranging, according to quality, from 25 to 35 cents per lb. There perhaps will not be less than $40,000 paid for this single staple, this season, in that village.

The uses of a Palace.

It is said that the purchaser of Joseph Bonaparte's splendid mansion at Bordentown intends to convert it into a glass manufactory, and the beautiful parks and lawns which surround it will be used for purposes of tillage.

Health of New York.

A table of the weekly deaths in this city for the first six months of this year, shows the number to be 6680, out of a population of half a million,

© 1847 SCIENTIFIC AMERICIAN, INC

The Star Spangled Banner.

The following compliment to the American *eng* is copied from the Glasgow Journal of 1st June.

On seeing the American flag flowing on the Queen's birth day from the window of the American Consul's office, Glasgow.

Hail to our brethren's banner! let it float
On peaceful airs, to greet our festive day;
Better from friendly mansion than from moat,
And happier thus than in the battle's fray:

Bright emblem of a distant, but a kindred shore!
Thy stars and stripes attract our fond gaze;
May ever thus thy starry beauty soar,
And blend in tribute to our monach's praise.

No hand would stay thee in thy holy flight,
And thus in commerces' mart thou stream'st on high:
And thousands greet thee with unfeigned delight—
Columbia's standard in our British sky.

New Discoveries in Asia Minor.

In the course of some researches which have been recently made at Lipsek, (the ancient Lampsacus) in Asia Minor, a number of antique articles of gold and silver have been found; among them are, 1st, forty silver spoons, the bowls of which are nearly twice as long, wide and deep as our table spoons, and the handles also, proportionally longer than those in use at the present day, are square in form and covered with Greek inscriptions, which are almost effaced, and which have not yet been deciphered. At the top, on each side of the handles of these spoons is engraved a female bust, surmounted with the Artensis (Diana.) Each of these spoons weighs 40 drachms 2. A round plate of silver of five feet in diameter, on which is engraved a female figure of the height of two feet, magnificently attired—about her are a fox, a peacock, and a parrot, and at her feet couch two lions astride of which is a child. 3. A large plate in the form of a star with six angles, on which are engraved two female heads with flowing hair. 4. A silver stick of 2 metres 12 centimes length, and composed of four pieces soldered together. 5. Four large goblets of silver with handles, on which are sculptured in bas relief, female heads, all of different physiognomies. 6, A large cylindrical vase on three feet, ornamented with arabesques. 7. A flambeau of silver, with three feet, ornamented with arabesques. and armed at the top with a point. 8. A woman's necklace of gold, of beautiful workmanship, weighing 24 drachms. This necklace was set with forty large pearls, all of which crumbled to dust as soon as they were touched. Everything leads to the supposition that the most part of them, if not all, belonged to a temple of Diana, a divinity, the worship of whom prevailed very much in the neighbourhood of Lampsacus. The Turkish government have sent to the spot two agents to examine these antiquities, and to carry on researches.

The Bible.

In 1804, according to the calculation of Dr. Gregory, the whole world did not contain over 4,000,000 of Bibles. In 1847, by the exertions of the British and Foreign Bible Society, the American Bible Society and kindred associations, there are over 30,000,000 in circulation. In 1804 the Bible could be read but in forty-eight or forty-nine languages. In 1847 it is legible in one hundred and thirty-six languages —one hundred and fifty-eight languages and dialects. In 1804 the Bible was circulated to some extent among 200,000,000; and now it is circulated among 600,000,000 of people.

Ingenious Smuggling.

About a year ago a cargo of 500 broomsticks arrived at London from a port in Germany, and not being claimed by the consignee, were conveyed to the Queen's warehouse attached to the Custon house. Last week, one of the sticks was accidentally broken, when lo! it was found to be partly hollow, and to contain a considerable quantity of manufactured tobacco. The top of each pole had been perforated—the tobacco pressed in and secured with a peg, which, smoothed over, gave all the appearance of solidity.

Agriculture and Horse Power Machines.

BY. O. BADGER.

PART II.

My attention was directed to horse-power machines about twenty-one years ago. In 1828 I built some Threshers, Warren's kind with beaters, but the want of some mode to drive made them entirely useless. The only horse power then known was a stationary one consisting of a large vertical cog-wheel ten or twelve feet in diameter, with a horizontal shaft and trundle tread to mesh into it, and a large drum on the same shaft to belt off on a pulley, and another drum until enough of motion could be got. This was a cumbrous machine and took two horses to work it, and not being portable required a large building exclusively for itself. A number of farmers who had bought the right of Warren's machine, applied to me to see if I could not get up a more economical and portable one. I thought of several ways, particularly the clock work gearing, since so extensively used and so much disliked. I was satisfied that it would work, but that it involved a great consumption of power by friction, and having made experiments became satisfied that one half of the horse power in a six-horse power machine was wasted thereby, and that two horses could do as much as four if their power could be applied direct to the thresher without gearing up and down, as in the case of sweep power, I therefore abandoned this idea, but it was brought forward by others because no other way was made known. I then thought that a one-horse power machine would best suit our ordinary farmers, one that could thresh from 60 to 100 bushels in a day and be managed by any one farmer with his own team and family. I then went to work and got up a machine which has since gained some celebrity, as the endless chain or inclined plane power, on which the horse walks on an endless floor, which revolves under him by his weight, it being inclined sufficiently for that purpose.—The floor is made by putting together pieces of plank across two wrought iron chains upon which the planks are rivetted and thus a flexible endless floor is made, the ends of the chains being connected and doubled over across the shaft at each end with two pulleys on each shaft with horns cast on the same to correspond and work into the open spaces in the links, keeping the chain from slipping.—The floor is supported by friction rollers under the part that the horse walks. I found that this machine needed some self-supporting principle to prevent the floor boards from dropping between the rollers. I therefore adopted the plan of putting two rows of clappers across the ends of the floor logs in a manner so that it was impossible for the floor to sag. The chains on which my floors were built were made flat, by an open link of round iron and a square hole through it for the horns on the pulleys to work into, and between each two of these links was a band of iron bent so as to hold taught the rivetts of the floor as they passed over the chain. I built one of these machines in 1827 and it could thresh about one hundred bushels of rye in a day with a fanning mill attached to it. It was very imperfect but satisfied me and many others that the principle of its construction was worth something. This was the first portable horse power machine that I have any knowledge of. It created much excitement and many came to see it, and it was noticed by many newspapers, yet the great body of our farmers stood aloof and shook their heads. My friends endeavored to discourage me, and as I was engaged in making machinery for cotton manufactories, I let it stand, intending to take it up and finish it at some future period. But alas for circumstances, I was disabled from paying any attention to it until 1836 and in the interim there had sprung up some half a dozen portable horse powers, and when I got into market I had to contend with a host of competition, but mine soon gained a character which made it the most used of any throughout the state, except in the heavy wheat countries, where the 6 and 8 horse powers were used. These one horse powers are the only kind that have been really successful and in good demand. There were made in each of three shops in this state one hundred of these machines for six years and with some little modifications, they are now in general demand. As is too often the case with inventors, however, I have made nothing out of them, for having let it lie so long, when I applied for a patent I found that others had patented the most valuable parts of my invention, (I do not say intentionally,) and I was obliged to compete with my own invention, by making better machines than others. Mr. Lane had already by his machines made a fortune, and I could only glean where others had reaped. There have been several improvements, so called, in these machines palmed upon the public, a number of those have had their day and passed away and I am left on the ground in the hope at least of that divine liberality which sayeth "thou shalt not muzzle the ox that treadeth out the corn."

Fly Creek, Otsego Co., N. Y.

Progress of the United States.

When Washington was inaugurated the first President of the United States, a population of some 3,500,000 souls then occupied thirteen States on the Atlantic coast, conveying an area of some 473,000 square miles. The population of these United States have swelled to 20,000,000. They have added 814,810 square miles to their represented territory They have risen to the first rank as a commercial nation, and have successfully disputed with England the dominion of the seas. They have become an object of dread to the despots of Europe, and of admiration and hope to the people of the world. Their flag is respected in all quarters of the world, and their friendship courted by all nations. They have successfully pushed their claims to the Pacific Ocean, and doing so, have been declared in Europe as the first nation that has 'obtained from the fears of England what her sense of justice would not yield.' These wonderful results are, doubtless, mainly to be attributed to the virtue, energy, and freedom of the people.

Libraries in the United States.

According to a table compiled from the researches of a literary gentleman in New York, there are in the United States no less than 236 public libraries.

The aggregate number of volumes is set down at 2.354,360. It appears that the State of N. Y. has 54 libraries, with 174,000 volumes; Pennsylvania, 32 libraries, with 176,-100 volumes; Massachusetts 30 libraries, with 203,000 volumes; Ohio 23 libraries, with 68,-000 volumes; Maryland, 11 libraries, with 54,200 volumes; the District of Columbia, 9 libraries, with 65,600 volumes, and the other States smaller numbers. R. Island, in proportion to her population, has the largest number of volumes of any State in the Union.

Caution.

It may be well that the public should know, that the blue ink which appears to be growing into general favor, is in part composed of one of the most poisonest substances in nature—that is *Prussic Acid*—the ink being a solution of the pigment called Prussian Blue, which is a compound of Prussiate of potash and iron. This ink, therefore, must be a very dangerous article in the hands of children, as well as grown people, who are in the habit of putting their pen in their mouth in order to cleanse it. It is said one drop of this acid in its pure and uncombined state, when put even upon the nose of a rat, is sufficient to cause its immediate death.

The above advice we hope will be appreciated, as it is sound and correct.

Steam in Great Britain.

In 1814, the United Kingdom and colonies owned but two steam vessels: in 1815 they had 10; in 1820, 43; in 1830, 315; and in 1844, 988. Scotland, which took the lead in steam navigation, has ever since shown a large proportional list of vessels. Of the above 988, England had 679, Scotland 137, Ireland 81, Guernsey, &c., 3, and the colonies 88. The total burden was 125,675.

Virtue alone gains Respect.

There is a time when men will not suffer bad things because their ancestors suffered worse. There is a time when the hoary head of abuse will neither draw reverence nor obtain protection.

Gas Manufacture.

The London Railway Gazette notices a new company, to be called the "Cardinal and Central Gas Light Company. It is formed for the introduction to public utility of a new, cheap and efficient method of manufacturing gas from sources hitherto unproductive. The most novel feature in the formation of this company is, the privilege to be granted to the customer of changing the mode of lighting at so much per 1000 feet, to "such an illuminative power, at so much per quarter, to be estimated by the size of the room to be lighted, by every 100 cubic feet of space, will be accomplished at one-third the present charge." The prospectus states, that from the value of the remains in the retorts, and their improvements in the manufacture a superior illuminative gas can be produced by them at 4 shillings per 1000 feet. These advantages are obtained from the use of one-fourth bones to three-fourths of coal; and the substances obtained from this system are—grain black for the sugar-refiner flake black for the japanner, currier, &c. ivory black; coke from the coke-ovens and retorts; limpid naptha; the ammoniacal salts; sal-ammoniac and salvolatile; bone earth, used in the manufacture of porcelain; carbonaceous manure; and a large volume of rich gas, at the rate of 7000 feet for every ten of bones calcined. The patentee of this new, and apparently economic and elegant system, is a gentleman who was many years a pupil of Dalton, the celebrated originator of the theory of atomic chemistry, and also of Berzelius; and has founded his system on true chemical principles, and on the law of luminous bodies, as laid down by Davy, Sir J. Leslie, and other eminent men; and, when carried out, will no doubt, obtain great support from its purity and economy—it being as stated by the patentee, free from those exhalations so injurious to paintings and decorations. The capital is to be £750,000, in 75,-000 shares of £10 each.

Plank Roads.

Planks of hemlock eight feet long and four inches thick are laid crosswise on the road on sills four inches square. The earth is broken up and made fine, and the sills are bedded into it, and the surface graded smooth; the plank are then laid on the sills, care being taken to have the earth up to and touching the plank at every point. This is important, for if any space be left for air under the plank, or alongside the sills, dry rot follows. The plank having been laid, the next thing is to grade a road some ten or twelve feet wide on one side and two or three on the other, by taking earth from the ditches on each side and bringing it by a ditch scraper just up to and even with the upper side of the plank, so that if a wheel runs off the track, it passes upon a smooth surface of earth. The ends of the plank should not be laid even, but a part should project from two to four inches by the general line, to prevent a rut being cut just along the ends of the plank. If the ends of the plank are even, and a small rut is made, the wheel of a loaded wagon will scrape along the ends for some distance before it will rise up to the top of the plank, unless the wagon moves in a direction nearly across the road; but if the wheel cannot move two feet forward without coming square against the edge of a projecting plank, the difficulty of getting on the road is avoided.

Pennsylvania Coal.

Pennsylvania alone contains an area of coal land five times the extent of that possessed by Great Britain. Her iron mines are also very extensive—probably equal, if not superior to those of the mother land. And yet the annual product of the mines of Great Britain is computed at £20,000,000. Of this vast sum, £8,000,000 accrue from iron, and £9,000,000 from coal.

Schonbein's New Discovery.

Some time ago it was reported that Prof. Schonbein had discovered a new method of immediately healing wounds by the application of some chemical mixture. Reports seem to confirm former rumors, and the inventor of gun cotton may have made a new discovery as valuable in the preserv tion of human life, as the cotton is known to be destructive.

© 1847 SCIENTIFIC AMERICIAN, INC

NEW INVENTIONS.

Cloth Measure Register.

The Cloth Measure Register invented by Mr. Addison Smith of Perrysburgh, Ohio, and patented on the 16th of June last, was exhibited to us a few days since and we were immediately impressed with its advantages and convenience in being applied for measuring cloth and registering the same, in warehouses and factories.

There is a small dial at the yard's end with a single hand that marks by a spring every yard that is measured, saving the memory of the measurer to count. The hand tells each yard that has been measured to the amount of 30, and the dial can be enlarged to measure any amount. When a piece has been folded another spring is touched and the dial hand moves back to the cipher, and so on. The machinery is very simple and neat, resembling the face of a watch. It can be put up on a counter or on the end of a post, where hooks are used, as in warehouses. This instrument avoids the mistakes of memory in measuring cloth, created by confusion or carelessness.

New Corn Dryer.

At the meeting of the New York State Agricultural Society, held at Saratoga Springs on the 3d instant, a description was read of a new apparatus for kiln-drying Indian Corn, recently erected by Col. John H. Tower of Clinton, Oneida county. It is as follows:—

A frame work of brick is built, arched at the top, enclosing a sheet iron cylinder, made up of separate tubes about two inches square, coupled together by iron castings. An iron shaft passes through the cylinder, sustained by a support at each end, and over a pulley at one end of this shaft, runs a belt from some of the machinery of the mill, which thus forms the motive power of the machine. The grain runs from a feeder into the head of the cylinder, thence into the tubes, and as the cylinder revolves, one end of it being elevated, the grain has a revolving motion, gradually passes forward and through into a receiver at the other end. A small furnace or common stove in the bottom of the kiln, with pipes passing from it under the cylinder, furnishes the heat, and the rapidity of the drying process depends upon the fire, and the elevation of the head of the cylinder, both of which can be regulated at pleasure.

It will be seen that this principle of the dryer is nearly the same as that of Mr. Bulkley, and published by us on the 3d inst., and noticed in the Scientific American of May 22d. Mr. Bulkley uses steam instead of fire heat.

Improvement in the Ox Yoke.

A farmer in Seabrook, Mass., has made the following very important improvements in the ox yoke:

The bows go through a slide which is fitted to a mortice in the yoke which is made 3 or 4 inches longer than the slide, which will make it changeable 6 or 8 inches, which makes the difference between a long and short yoke. The mortice is made an inch wider at the bottom than the top, with a groove in the centre half an inch each side for the slide to rest upon, an iron bolt at each end of the mortice and one in the centre, which goes through a mortice in the slide and preserves the requisite strength. The slide is regulated by an iron hasp attached to it, and enters holes in the yoke half an inch apart, which makes it easily fitted to any yoke of cattle from a long to a short, and to give the advantage to either ox from half an inch to 6 or 8. It has been fully tested by using it two years. If one ox in a team should appear weak and unwell, it would seem cruel to oblige him to do an equal share of the work, remove the slide, give him 6 inches advantage, and your team need not lie by on that account.

New Shafting Bearing.

A gentleman in Boston, we undeastand, has invented a new "shafting bearing" which he predicts will come in general use, and if it proves, upon further trial, to work as satisfactorily as the experiments which have been already made would lead one to expect, it will be of great importance to railroads. It is so constructed that there is scarcely any friction, and no oil is required to keep it running. The inventor has given it only a partial trial, which proved satisfactory; he intends, however, to apply his invention to a railroad car, and thus give its qualities a thorough test.

Amputating Saw.

Mr. J. S. Stevens, of Andover, Mass., has invented a small circular saw machine, to be placed on a frame, so that it might be turned by hand, for the purpose of assisting surgeons in the operations of surgery. It can cut through the bone of a limb in less than one-fourth of the time that it now usually takes by practising surgeons, and cuts much smoother. Some excellent surgeons think it a most valuable improvement over the old method. Every invention devoted to humanity, is a noble effort of genius. We rejoice to see Mr Stevens' genius directed to a humane object, which is more than can be said of a great many.

A new kind of Rifle.

The editor of the Springfield Gazette, has lately examined a new rifle, recently completed at the U. S. Armory, in Springfield. It was got up as an experiment from a mould prepared by Mr. Cyrus Buckland, the master machinist of the Armory.

It is called a *Wall Rifle*, and is the first piece of the kind ever manufactured in the United States The length of the barrel is 36 inches, calibre 3-4 in.; diameter at the breech 2 1-4 in.; diameter at the muzzle, 1 3-4 in.; weight of barrel 30 lbs., and of the whole piece about 35 lbs. The charge was 178 grains, and the weight of the balls or slugs 2 1-4 oz. A piece of canvass 2 1-2 by 8 1-2 feet, with a painted ring in the center 14 inches in diameter, was pierced by the balls at the distance of *half a mile*, 21 times in 24,—three of them piercing the ring in the center. The Rifle is designed for light mounting upon a wall or parapet, or even upon the back of a horse or mule, whence it might do formidable execution upon the straggling troops or reconnoitering parties of an enemy.

A New Washing Machine at Cincinnati.

Another new model for a washing machine, appearing to answer the purpose intended, as a labor saving machine; and from its simplicity and cheapness of construction we should think it worth the attention of mechanics. Its work is spoken well of by other papers: to be seen at the American Hotel at that place.

The ladies should examine it and test its qualites. The men have their labor saving machines—threshing machines and all that sort o' thing—why not give the women more washing machines? There is philosophy in this machine, although it is but one of a thousand improvements in the washing machine which have been patented in this country.

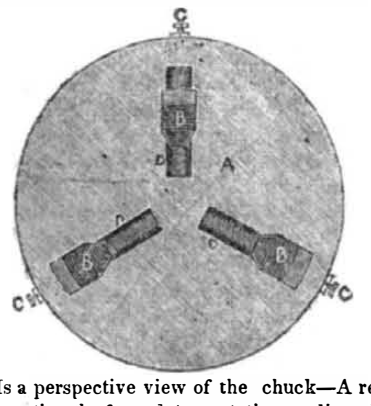
Reid's Improvements in the Manufacture of Electro-Telegraphic Wire.

By the London Mechanics' Journal we learn that Mr. S. P. Reid has patented the following method of preparing the Wires for the Telegraph.

It consists in simply welding together (end to end scarfwise) the rods of iron *before* they are drawn into wire, and then passing them through the drawing machine, whereby the whole is not only produced of one uniform diameter, but any defects in the welding are instantly detected, through the strain required in the drawing process. Another valuable portion of this invention consists in an improved mode of preparing the wire for being coated with zinc, to protect it from oxidization, or as it commonly termed, being galvanized.—Hitherto it has been the practice to cleanse the wire by immersing it, or otherwise subjecting it to the action of sulphuric or nitric acid; and it has been often much injured in structure from the acid not acting equally on all parts of the wires alike, or from some parts being longer exposed to its action than others. Mr. Reid dispenses with the use of acid altogether, and effects the cleansing altogether by mechanical friction. By an ingenious system of machinery, he cleanses from six to twelve lines of wire at at a time, and not only with immense rapidity but with a degree of perfection wholly unattainable by the acid process.

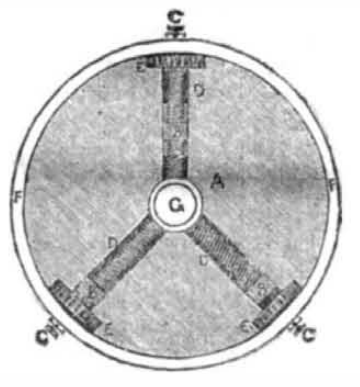
Hyde's Lathe Chuck.

FIG. 1.



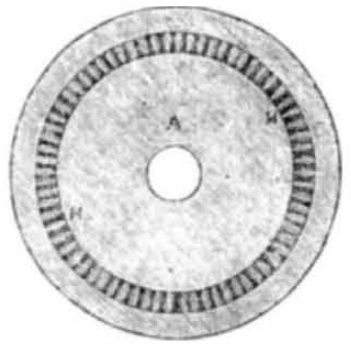
Is a perspective view of the chuck—A representing the face plate or stationary disc. B B B, are the jaws for holding the pattern, plate, &c. to be cut, drilled or turned. C C C, are screws on the outside of the disc, on each of which is fixed a small pinion, the small screw being fitted into the large screw which moves the jaws, but which can be ungeared from the same, because they are fitted in spring splits for the purpose of leaving the action of the pinions free while the jaws are in full gearing, as will be better explained, after we have designated the relative parts by the letters.

FIG. 2.



Is an inside sectional view of the chuck—A representing the back of the face plate and C C C the screws, as mentioned before. B B B are grooved rests for the screws, through which they move—the rests are connected with the jaws. E E E are the pinions already referred to as fixed on the miniature screws and which working under the flange or rim F F, move the screws which work in the hole or axle G. The screws are moved either to gear or ungear the cylinder, or plate, or whatever it may be, to be operated upon by

FIG 3.



The moveable disc A, represented by cogs H H cut round the whole circle to mesh into the pinions E E E, and move on the axle G, of the chuck in Fig. 2.

The uses and applications of this new chuck are thus described by Mr. Hyde, the inventor, a practical mechanic of the city of Troy, and who has a very inventive turn of mind:

"It is well known that there is great difficulty and trouble in turning eccentrics correctly, but by this machine a correct centre can in a moment be gained for any eccentric whatever. For example, if the centre for an eccentric cam is wanted, one to be coupled on a shaft—all that has to be done, is to place the cam plate in position for a centre by shifting the jaws B B B B, to any distance from the centre of the chuck separately to the minutest hair-breadth measure of the screw threads, and then drilling the plate at the point marked out. Again, when the first centre is gained and drilled, to ungear the pattern, the moveable disc has but to be turned and the pattern is set free to be changed to any other desired point to be drilled, by the movement of the jaws. Thus it will be seen that by the movement of the jaws on the screws eccentrics are gained when the jaws are not equi-distant, but for drilling a series of bolt holes in a circle, as in a piston, the simple motion of the butt plate working in the pinions, setts the jaws in gear and out of gear in a most speedy manner. Let one centre be gained for a circular plate, it is drilled, the moveable or butt disc gets one turn, the pattern is set free, then moved to the other part marked to be drilled, one turn of the moveable disc puts the chuck in gearing for drilling, it is drilled, unscrewed, and so on successively."

It is well known that too little attention has been paid to turning manipulations. Other things of less worth have occupied the mechanical mind. Here is an invention of a kind not frequently brought before the public, but it is one of great utility, the concentric chuck being the only kind in general use.—Hamptauzel's chuck, lately patented in England, is far inferior to Mr. Hyde's.

A model can be seen at our office. Measures for a patent have already been taken.

Night Telegraph.

At a late meeting of the Scottish Society of Arts, a communication was read by Mr. J. Stewart Hepburn, in relation to "Night Telegraphs by colored lights."

This telegraph consists of various combinations of the only two colors, red and white, which are distinctly visible at considerable distances. This is effected by the use of a lamp, enclosed in a hexagonal screen, which revolves horizontally on pivots, four of the compartments being apaque, and two furnished with lenses, the one red, the other colorless. By the turning of the screen the light can be either masked or shown of a red or white color, as the particular combination may require. Three such lamps are hung on pivots on an arm or beam 15 or 20 feet in length, turning vertically on its centre on an upright post, and made to assume four definite positions, horizontal, vertical and diagonal, rising from the left or falling from the left. The different positions of this arm, together with the varieties in color and order given to the lights by this construction of the lamps, afford at least fifty distinct combinations, to which numbers, or the letters of the alphabet, and arbitrary significations adapted to the particular uses of the telegraph may be assigned.

Locomotive for Ascending Inclines.

At the same meeting mentioned in the previous article, Mr. D. Erskine described a way of overcoming an Incline of one foot in twelve, with a new Locomotive Reversing Steam Engine, in the following manner:

In addition to the small wheels keyed on the axle outside of the usual large wheels of locomotives, and connected by connecting rods, Mr, Erskine has a toothed pinion on each side of the engine, dropping down betwixt the flange of the small wheels and the large wheels, which, on the locomotive coming to a steep incline, say 1 foot in 12, works into strong pins or bolts, fixed on the inside of the raised rail The engine and carriages all the while running on the small wheels, by which their whole weight is borne, and the large wheels acting as fly-wheels, leaving the toothed pinions nothing to do but to work in gear with the pins or bolts, thereby effectually preventing slipping. It was shown, by a beautiful working locomotive of about 9 lb. weight, made by Mr. Erskine, and fitted with his reversing pivot valve, that by this means it easily ascended an incline of 1 foot in 10; and on an incline of 1 in 16, the small wheels themselves, without the toothed pinion, easily accomplished the ascent; whereas the engine could not attempt the ascent with its ordinary larger wheels. It was stated that this is not the first time a rack and pinion has been proposed on the inclines and railways, but that it has never been proposed in the way now done by Mr. Erskine, by whose method the power is so vastly increased by being brought to act so near to the centre of the wheel.

Testimony to a real Deserver.

Mrs. Catharine Wilkinson, who originated the plan of public wash-houses at Bath, Eng. has been presented with a beautiful service of silver and china table ware, as a testimonial. it was well deserved.

© 1847 SCIENTIFIC AMERICIAN, INC

NEW YORK, JULY 17. 1847.

Progress of the Cotton Manufacture.

From the destruction of the Greek empire by the Turks may we date the rise of the day star of European mechanical genius. In the fifteenth century Stevinius the .Dutch engineer, constructed windmills in the Low Countries, and in the Italian States small mill wheels were erected in great numbers, and at the present day on the mountain streams of the Tyrol, they are to be seen on every glen, pursuing, if we may use the expression, a thousand various occupations. It was not, however, until the last century that the full value of water power became known. From the wars and tumults of Europe, it became perfectly impossible to manufacture clothing and epuipments in those countries once celebrated for manufactures, therefore to those nations that were at peace, a field for the manufacture and sale of merchandise, was white for the harvest Flanders, once a great manufacturing country became the cockpit of Europe, and in Italy, France and Spain, manufactures were almost entirely destroyed. England isolated from the strife then became the workshop of the world. The demand for her manufactures soon became far greater than she could supply and the flocks of Spain and Saxony slaughtered for the food of slaughtering men, cut off the supply of raw material which used to be employed for clothing. At this period an auxilliary was discovered in the abundant supply of American cotton, but which from the difficulty of cleaning, rendered it as expensive as linen. It was then that American genius arose to meet the difficulty. The machine which has immortalised the name of Whitney, by so beautifully cleaning the cotton from its seed, and by executing in the same time with the labor of one man what a hundred men could not perform, gave a value to that American produce which has made the fields of the sunny south like the flocks of Damascus coming up to the shearers from the waters of Pharphar. From the moment that the cotton gin came from the plastic hand of the ingenious Whitney, at that moment commenced the career of America's productive greatness and if ever there was an invention designed by God for a benefit to the human race, or a part of it, it was this machine; for there can be no doubt by the demand of Europe for English manufactures caused by the wars on the continent, that thousands more of Africans would have been dragged from their homes to feed the demand for cleaning cotton, and may we not truly conclude, that the cotton gin has saved our country from being deeper stained with an evil than it is—an evil that seems to baffle the wisest in its removal.

The invention of Whitney, strange as it may seem, was also the source from whence flowed the stream of Britain's mechanical greatness and Britain's great wealth. It soon came to pass that America could supply the demand of Great Britain in cotton at such a rate that all other products of the same nature were soon nearly banished from the market. But Britain could not supply the demand for her manufactures and although her whole population had been employed in manufacturing they could not have supplied the demand. Twenty years before this period, Hardgreaves had invented the Spinning Jenny, which by the labor of one man could spin as much as twenty by the spinning wheel.—Crompton soon invented the Mule and Arkwright the Throstle Frame, which being propelled by water power multiplied the products of England in a wonderful manner; all, however, could not supply the demand. The little island of fifteen millions of inhabitants had not only to manufacture for herself but for an hundred millions of the world beside. Her weavers could make ten dollars per week with the utmost ease and they became prodigal from the abundance of wealth so easily procured, hence many became ind lent, and the government and capitalists seeing the great demand for manufactures and a total insufficiency of supply, encouraged mechanical genius to supply the defect. It was not long till the gap was filled up like as by Whitney, for Cartwright soon invented the power loom, which multiplied the produce of cotton cloth five-fold. The cotton gin, the spinning jenny and the power loom are now brought to great perfection, and to give some idea of the benefits of machinery, it is calculated that one hundred girls can weave more by the power loom than 2000 by the hand loom. In the spinning department the saving is more wonderful still, for by the hand wheel it took three spinners to supply one weaver, now five spinners can supply fifty weavers. By the small spinning wheel one female, at most, could only make two threads at once, now one man with four small boys can attend 1400 spindles on the coupling mules. How much are we indebted to mechanical genius in the manufacture of cotton cloth alone. By machinery, force can be more widely and minutely distributed over a greater number of surfaces than by manual labor, and superior for correct and steady action. In this respect it may be said that man has triumphed over himself, by compelling his physical power to worship his own genius.

Improvement.

Very frequently we hear complaints of the evils resulting from the progress of improvement. Had it not been for such an invention we might have lived and secured good wages —is the remark of many in these days.

There is an error on this subject which we wish to combat. It is true every improvement which enables one man to perform the labor of 20 or 100 persons, affects injuriously 19 or 99 laborers temporarily, or so long as they are employed in procuring and perfecting themselves in some other occupation. But on the other hand, the cheapness of production caused by this saving of labor is a benefit which extends to thousands, in short to all the consumers of articles whose production is increased by this improvement, and not for the present only, but for all future time.

Improvements in the machinery for the manufacture of cotton goods have multiplied the productive power of labor a hundred fold, and there are those who lament the departure from the old distaff and hand-loom. In the absence of these improvements, one of two things must necessarily have been the case. Either we must have been contented with one hundredth part of the cotton goods made, or ninety nine more laborers for every one now employed in their production must have been employed, and we should want the articles they are now employed in producing.

Conceive if possible, a state of society in which all labor saving machinery is unknown and men have nothing but their teeth and nails to assist them in their labors. Compare this state to the present and then pronounce whether improvement has been a curse to our race.

But some will say, "there is a medium in all things, and there is a point at which even improvement ought to stop." But let no one say that we have arrived at that point, whilst small children and delicate females are employed 13 or 14 hours per day, in supplying the wants, natural or artificial, of community.

Either mankind must contract their wants into a greater accordance with nature, or there is necessity for still greater improvements, in order to reduce the hours of labor to a standard better adapted to foster our powers physical, mental and moral than exists at present.

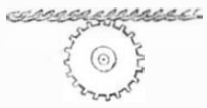
A degree of physical effort is necessary to physical health, but it is no less true of the higher parts of our nature that to secure their healthy action we must have time for their exercise.

Manufactures in Russia.

We observe by our last English exchanges that numbers of artisans and mill hands were leaving the manufacturing towns in England, for Russia; where, it is said three large cotton mills are about to be put in full operation, to be driven by steam— two of them by engines of 80 horse power, and one by engines of 120 horse power; total, 280 horse power. England will soon, therefore, have a new competitor in the markets of the East.

MECHANICAL MOVEMENTS.

Circular and Rectilinear Motion.



By the wheel and axle a continued rectilinear motion may produce continued rotary motion and vice versa. If the power be applied by a rope coiled upon a wheel, the continued motion of the power in a straight line will cause the machine to have a rotary motion, and again the same power applied to a wheel the motion of it will cause the rope with a weight to it, to have a rectilinear motion, as displayed in a crane and block and tackle — The above cut represents a rag wheel working in a chain as described nearly in Mr. Badger's account of the floor of a horse power machine and as exemplified in the *dogs* of an endless belt

Pile Driver.

The above cut is a modification of the movements for driving by rag wheel and rack any weight for the purpose of pile driving, as practiced in the building of docks and in laying the foundations for bridges. The wheel is supposed to be in connection with another drum on which is wound a rope as the rack is wound up and by ungearing the lower wheel or drum lets the weight fall and then sets the wheel in gear again on the rack and so on successively. The most beautiful operation of the rack and pinion to be seen combined in any machine whatever, is in the self-operating spinning mule frame. It will be seen that Mr. Nasmyth, of Panticroft, England, has taken out a patent in the United States for a new steam pile driver. This is an application of his engine, which we formerly noticed at some length.

Deepening the Hudson River

A meeting of the citizens of Albany and Troy was held at Albany on the 1st inst., for the purpose of taking into consideration the best way to remove the obstructions to navigation between New York and these cities, as the steamboats and sloops have (as we have experienced) sometimes to take a rest of three hours on Cuyler's Bar. It was thought that $5000 would be a sufficient sum for the removal of those obstructions, and it was proposed to raise that amount by private subscription. The Evening Journal complains of the General Government for leaving to private enterprise what should be accomplished by the Federal Power. We are sorry to hear this sentiment expressed and sorry that so little scientific labor has been done by Albany and Troy, for the deepening of the Hudson. It is our belief, that when there is volume enough of water, there can be made depth enough and we know of a plan to deepen the river below Albany and Troy so that vessels of 1400 tons burden might be seen lying at the foot of State street.

New Comet.

A letter from Paris referring to the session of the French Academy of Sciences, says:— "Mention was made of a new and very feeble telescopic comet which has just been discovered in the constellation of the little Lion, by M. Colla, director of the Meteorological Observatory of Parma. It was seen for the first time May 7th, at 9 o'clock in the evening. It was observed at Paris shortly after, and the elements of its orbit have been satisfactorily determined."

The New American Steamers.

We are pleased to learn from the Pennsylvanian that Philadelphia is to have the honor of building one of the new American mail steamers. The mechanics of that city will therefore have another opportunity of exhibing their skill in the constuction of ocean steamers

The Flour Trade.

It is stated in the London Times that 7,500,000 chetwerts (45,000,000 bushels) of grain, chiefly wheat and rye, had been collected in the extensive granaries at Rybinsk, on the river Wolga, to await the opening of navigation, which at the last accounts was near at hand. The town of Rybinsk is about 300 miles from St. Petersburgh, and on or near a canal, which connects the navigation of the Wolga with that of the Baltic. A chetwert is a Russian measure, equal to 5.95 of our bushels. The same paper of a prior date stated that there were 3,500,000 chetwerts (21,000,000 bushels) of grain awaiting shipment at the southern ports of Russia, on the Black Sea and the Sea of Azof. Now if there is any accuracy in these statements, (and they proceed from the most authentic sources,) both England and the continental states of Europe must before this time have been deluged by supplies from Russia—and if so, it is certain that nothing short of a total change in the prospects of the European harvests can prevent a heavy and rapid decline in the high prices of breadstuffs abroad. It is to be observed that the smallest of the enormous quantities above named is equal to double the entire receipts of flour at the city of New York during the year.

Lumber on the Kennebeck.

Probably there has seldom, if ever, been a better run of logs on the river than during this season. It has been calculated that the number of logs which have gone over Tironic Falls, within fifty days, have not been less than 5 logs a minute; or three hundred an hour, 72,000 a day, or 360,000 in fifty days. It would be a low estimate to prize the logs as they are at $3 each, making the whole value $1,080,000. When converted into lumber the value will be considerably increased. Reckoning all that have come down this year, their value when converted into lumber cannot be much short of $2,000,000.

Trade of Orleans.

The value of the products received at New Orleans from the interior, in the course of the single year 1845, is set down at over *fifty-seven millions of dollars*—and this, too, during a year peculiarly unfavorable, by reason of the low stage of the rivers. The number of steamboat arrivals at New Orleans during that same year, was 2,530, and their united tonnage was estimated to have been 632,-5000 tons. An amount of steamboat tonnage greater than that of the whole of Great Britain. The whole steamboat tonnage employed on the Mississippi in 1845, was over *three and a quarter millions of tons*, while the foreign tonnage of the United States was only 4, 080,-463 tons. The very expense of running these boats is estimated at nearly eighteen millions of dollars a year.

True Economy.

Economy is a good thing, and should be practiced by all, but it shows itself in denying ourselves, not in oppressing others. We see persons spending dollar after dollar foolishly one hour, and in the next trying to save a five-penny piece of a wood-sawyer, coal-heaver or market-woman. Such things are disgraceful if not dishonest.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

THE
SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper, have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

TERMS.—$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months.

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper for the same length of time.

© 1847 SCIENTIFIC AMERICIAN, INC

FOREIGN CORRESPONDENCE.

Atlantic screw-propeller steamer Washington. The Ten Hours' Bill. Steamboat Building in Glasgow, &c.

England is a great workshop—a nation of mechanics and merchants. It is wonderful to see her mighty power displayed, not in bull-fights and operas, (although the latter is belied just now in the *enthusia* to hear and see Jenny Lind,) but as displayed in her railroads and locomotives. There is great encouragement given to stimulate mechanical genius. Thus for instance, the operative mechanics' associations are patronized by the very highest in the land. Well does England know that her wealth lies in the mechanical genius of her people. It was the genius of her mechanics which conquered Napoleon, not the bravery and skill of her generals and soldiers, for it was the wealth gained by her manufactures that banded Europe against France.

The Institution of Mechanical Engineers of Birmingham have proposed the following suggestions to its members :

" 1. The best form of railway axles and wheels.

" 2. The best description of engine and mill for manufacturing iron.

" 3. The best form of barker mill or turbine.

" 4 The best form of luggage engine for narrow guage.

" 5. The most economical stationary steam engine, with coal at 6s., 12s., and 24s. per ton, taken in a commercial point of view.

" 6. The best form of air-pump valves.

" 7. The best high-pressure marine boiler,

" 8. The best description of pumping engine for the thick coal district of Staffordshire.

" 9. The flow of water through straight mains and curves."

A premium of £1000 has been offered by the Royal College of Chemistry, for a discovery by means of which iron, when applied to ordinary purposes, may be rendered as little liable to rust as copper.

The steamer Washington was two days behind the Britannia. The Britannia is a most noble vessel, although she has not made the swiftest trips, yet she has made the most regular. Some of the English papers speak disparagingly of our skill in ocean steamboat building—others again speak in terms of unqualified praise. I send you the various opinions as expressed by the press, so that you can see that American skill is appreciated by the most intelligent in London.

At a meeting of the Institution of Civil Engineers, in London, Mr. J. Grantham read a long paper, which I send you, with an account of the Sarah Sands, and in favor of screw propellers ; their adaptedness to ocean navigation, and their superiority over the paddle. (If he was here now he would burn his book.) He also stated that a new steamer between Glasgow and Liverpool, on the screw principle, had given very satisfactory hopes of the screw superseding all other ways of propelling vessels in long voyages.

The city of Glasgow is full of machine preparations—a vast steamboat building place. Robert Napier has no less than fourteen steamboats of the largest class to fit up engines in. Four of eighteen hundred tons burden for the New York and Liverpool trade and eight government vessels of very large dimensions, also some smaller. He has as many orders as can be filled in five years, and Todd and McGregor, another steamboat building company, have as many as they can fill in three years. The genius of the Glasgow mechanics has made the river Clyde what the Hudson easily can be made, at Albany, viz : deep enough to float a seventy-four. The bill for reducing the hours of factory labor from twelve to ten hours daily, has passed both Houses of Parliament by a large very majority, It has received the royal sanction and become the law of the land amid much rejoicing. A gentleman speaking to me yesterday of its effects, said " it is a holy measure and would no doubt be adopted soon in America." I said that undoubtedly it would. The working classes in this country are fast gaining political power and the government are adopting a vast project for their better education. I cannot join in with some of my countrymen and stigmatize the English working-people as immoral and vicious, any more than I would believe some of the opinions of English travellers as expressed about my countrymen. A man who behaves himself like a gentleman, will be well treated wherever he goes and he will find virtue in the working man's bosom as truly, far more of it, as in that of the Prince. A good, honest-hearted rough welcome from a Johnny Bull, pleases me more than all the empty, cold-hearted formality, of what is called polished and courteous etiquette.

R. B.

London, 12th June, 1847.

Arrival of the Washington Steamer in England.

A foreign writer pays the following just tribute to American mechanical skill :

" The American Mail Steamer Washington, the noble pioneer of a new line, arrived at Southampton on Tuesday, the 16th inst., in less than fourteen days from New York. For a first voyage, and new machinery, this may certainly be considered a triumph to American enterprise, skill and talent, and but for the ridiculous expectations formed on her being able to cross the Atlantic in eight or nine days on her first trip, this voyage would have been considered a remarkable one. The passengers complained of the length of the voyage, but if a daring, reckless commander had driven this noble vessel forward, merely for the sake of gaining a few hours' time and had thereby endangered the lives of all on board, then complaints would not have been out of place. The great experience and skill of Captain Hewitt, together with his new steamer, were sufficient to induce a very large number of passengers to embark on board one of the finest specimens of naval architecture that ever floated on any ocean. That a new bolt or a new rod should not fulfil its duty in the engine-room for the first time on a long and severe trial, is not to be wondered at, that the machinery worked so admirably during the whole voyage, reflects the highest credit on the head that planned and the hand that formed such an intricate, elaborate and wonderful work of art. Every piece of her machinery I examined carefully as it was placed in the engine-room, and a more perfect work as a whole, I never saw in any English factory. No jealous feeling should permit a hasty opinion to be formed of the capabilities of the new line of American steamers."

The Daily News thus apoligizes for the non-arrival of the steamer Washington before the 15th :

" A few hours after the departure had been taken, it was found that the hot wells and waste pipe were too small, and could not free the condensed water, which reduced the vessel's speed four miles an hour. Twelve hours were lost during the passage by stopping to amend this defect and repair wheels. To this it is owing that the Washington only appeared in sight at Southampton yesterday ; but even had the defect been greater, and more difficult to be remedied, we have that confidence in the nautical talent, enterprise, and perseverance of our American cousins, to remain convinced that their ocean steamers will yet perform what has been promised in their name.

" As soon as she made her appearance the bells of the Southampton churches sent forth a merry peal in honor of the event. The town's people were quite elated, and rushed to the pier in vast crowds, to look at this magnificent American steamer."

Perfection.

A friend called on Michael Angelo, who was finishing a statue ; some time afterwards he called again ; the sculptor was still at his work. His friend, looking at the figure, exclaimed, " You have been idle since I saw you last."—" By no means," replied the sculptor ; " I have retouched this part, and polished that; I have softened this feature, and brought out this muscle; I have given more expression to this lip, and more energy to this limb "—" Well, well," said his friend, " but all these are trifles."—" It may be so," replied Angelo ; " but recollect that trifles make perfection, and that perfection is no trifle."

Mechanics' Institutions.

There is a want too much lost sight of in our estimate of the privations of the humble classes, though it is one of the most incessant cravings of all our wants, and is actually the impelling power which, in a vast majority of cases, urges man into vice and crime—it is the want of amusement. It is vain to disclaim against it ; equally with any other principle in our nature it calls for its natural indulgence, and men cannot be permanently debarred from it without souring the temper and spoiling the character. Like the indulgence of other appetites, it only requires to be kept within due bounds and turned upon innocent and beneficial objects to become a spring of happiness. But gratified to a certain moderate extent it must be, in the case of every man, if we desire him to be either a useful, active or talented member of society. Now, we would ask what provision do we find for the cheap, and innocent, and daily amusement of the mass of the laboring population of this country ? What resources have they to call up the cheerfulness of their spirits, and chase away the cloud from their brow after a hard day's work, or the stupifying monotony of a sedentary occupation ? Why, really, very little. We hardly like to assume the appearance of a wish to rip up grievances by saying how little.

The want is a beautiful, and social, and friendly association among the mechanics themselves, a cultivation of affection and of self-knowledge, along with the more severe study of the sciences.

In Great Britain there are at present four hundred institutions of this kind, comprising eighty thousand members, and possessing 400,000 volumes ! The members raise annually about $30,000 and occasion the delivery of nearly 40,000 lectures.

A Great Undertaking.

The works in operation for draining the lake of Harlem, in Holland, seem to have stimulated the ingenuity of the projectors to a still more gigantic undertaking, which may be safely characterised as the boldest enterprise of the age, namely, the drainage of the Zuyder Zee, which, according to a plan published at the Hague, is proposed to be effected by the construction of an immense dike, cutting off the communication with the North Sea, and by forming a canal between Amsterdam and the coast, into which are to be diverted the rivers which at present empty themselves in the Zuyder Zee. The expense of this undertaking is estimated at fifty millions of dollars. The Zuyder Zee was at one time an inland fresh-water lake, such as it is described by Pomponius Mela, and that its conversion into a gulf of the sea was effected in the thirteenth century, when violent storms destroyed the barrier between the ocean and the lake. Traces of this barrier still exist in sandy islands and shoals.

Knowledge and Labor.

The nuptial bond cannot be too early tied between knowledge and labour; the preservation of her honor, station, and standing demand their plighted troth. The cautious, grave, and reflective disposition of an increasing knowledge is required to tame down into a quiet and respectful submission the wild and boisterous disposition of restive labor—the cool and calculating to check the vagaries of the wild and thoughtless. Labor's confiding and implicit dependance upon a vigorous, active and stirring knowledge, conversant with her several wants and disadvantages, willing and prepared to act for her benefit, is now her remaining hope, and present solace under the numerous and trying difficulties she has to encounter—a knowledge which will and must disabuse her mind of all preconceived notions, and uproot the several means she has instituted for her preservation.

Viaducts.

The splendid viaduct which carried the railway over the river Neurthe, in France, has fallen—damage $500,000. A viaduct is in progress near Harrowgate, England, the masonry of which is one-third of a mile in length, across the Crimple Valley. It consists of 32 arches of 52 feet span, and the loftiest 130 feet high. It is for the railroad.

Steam and Sailing Lines.

There are now plying between the United States and Europe three lines of steamships transporting mails and passengers with the regularity of clock work. Of these the Cunard Line has five vessels, plying between Liverpool and Boston, via Halifax, leaving Liverpool the 4th and 19th of every month, and Boston, the 1st and 15th. This Company has four new vessels building, to form a line direct between Liverpool and New York. The French Line of Steamers, the first of which,—the Union,—arrived here on the the 8th, numbers four vessels plying direct between Havre or Cherbourgh and New York twice a month. Our Line of American Mail Steamers, of which the Washington has already made a trip to the Old World and is now on her way back, is to number four vessels, sailing between New York and Bremen, via Cowes and Southampton, leaving New York on the 1st and 16th of each month, when the three remaining steamers are completed. Besides these three lines, embracing 17 vessels, there are three transient Steamers plying between the United States and England—viz : the Great Britain, Sarah Sands and a new vessel about being launched at Liverpool. An arrangement has also been made, that the West India English Mail Steamers shall touch at New Orleans. There are ten regular lines of Packets from this port to Europe. There are 16 ships in the London line, all staunch beautiful craft, and leaving New York on the 1st, 8th, 16th and 34th of every month, and London the 6th, 14th, 22d and 28th. They leave Portsmouth two days later than London. There are 23 ships in the Liverpool line. They leave New York on the 6th, 11th, 16th, 21st and 26th of every month, and Liverpool on the same days. There are 12 ships in the Havre line This line leaves New York on the 8th, 16th and 24th of each month, and Havre on the 1st, 8th, and 24th.

Love-Letters of Mary, Queen of Scots.

It has already been stated that the Edinburgh Review is about to publish the recently discovered love-letters of Mary Stuart, written to Bothwell before the assasination of Darnley, her second husband. These letters were produced by regent Murray, during the trial against Mary, instituted by Queen Elizabeth. Their authenticity was denied and defended by Mary's friends and enemies. The letters remained in the English archives until the reign of the Charles', when they disappeared, and it was thought were destroyed. It was the interest of these Kings to hide all proof against their grandmother.

Instead of their being destroyed, it now appears that they were taken to Scotland, and Sir William Knox has discovered them in the library of Sir Arthur Lesley, a knight of the western highlands. Lesley, Bishop of Ross, a progenitor of Sir Arthur, was an attached partisan of Mary Stuart, and a commissioner appointed by the unfortunate Queen to defend her interests, when Elizabeth summoned her before the English tribunals. It would seem probable, from this, that the Bishop of Ross collected and preserved this correspondence, and left it among his family memorials.

Blackberry Syrup.

The following is the recipe for making the famous Blackberry Syrup. All who try it will will find it a sovereign remedy for bowel complaints :

" To two quarts of blackberry juice, add half an ounce *each* of powdered nutmeg, cinnamon and allspice, and a quarter of an ounce of powdered cloves. Boil these together to get the strength of the spices, and to preserve the berry juice. While hot, add a pint of fourth proof French Brandy, and sweeten with loaf sugar. Give a child two teaspoonful three times a day, and if the disorder is not checked add to the quantity."

Author of the Letheon.

The State Legislature of Connecticut, after a due consideration of the evidences of the various claimants, have fully recognised Dr. Horace Wells, of Hartford, as the sole discoverer of the (so called) Letheon, as applicable to surgical operations and have passed him a vote of thanks for this wonderful discovery.

© 1847 SCIENTIFIC AMERICIAN, INC

Mechanics Mutual Protection.

This Association now numbers no less than eight different bodies in this city, and another, No. 41, will be instituted immediately.

The notice in another column for a Grand Demonstration of our Mechanics at Buffalo, next week, will be responded to by hundreds of members from New York, Ohio and the Western States. A great deal of spirit and zeal characterizes the whole body. The Association is increasing in numbers and talent and it is to be hoped that soon we shall embrace all the best and most generous of our worthy craftsmen. It is an association instituted to promote good will among employers and their workmen—also to institute means for the improvement of the working classes, and for this purpose a Literary Institute is about to be formed by the members of the different Societies in this city and there can be no doubt but that in a short time we shall be able to say "that hitherto we have prospered most abundantly." I shall send you a list of the various officers of the separate Protections in this city and Brooklyn for next week's paper, also a corrected Directory and other information. JAMES HUYLER, D. G. P.

TO CORRESPONDENTS.

"W. W. H. of Ohio."—A patent can be taken out without personally going to Washington. The models, drawings and specifications and affirmation to the invention claimed must be submitted.

"J. G. L. of Pa."—Use boiled oil—the best linseed—and no turpentine along with good white lead and you will find that the paint will not rub off like white wash. It is the superfluity of turpentine that spoils some paints entirely, as in combination with the oil, it forms a kind of soap. White painted walls inside of buildings, will not get soon yellow if exposed to plenty of air and light This is the only remedy with which we are acquainted.

"F. W. of Nantucket."—We cannot tell, nor any other person. Mineral rods are but illusory at the best. Our best mines have been discovered by accident.

"H. L. of N. C."—You will have perceived the description and drawing of Judson and Pardee's Stave Machine, and you will be the best judge what course to pursue.

"N. S. of R. I."—We know of no place where you can get such saws as you want.—The formation of the plate is altogether different from any made.

"E. of L. I"—A patent has been taken out in England for the manufacture of mosaic within six months.

"L. P. of N. H."—The effect of boiled oil is to act as a kind of varnish for the carbonate of lead, as it is thicked by boiling and gathers a very fine skin which resists the action of the atmosphere. The plaster in our opinion will have no good effect.

"T. L. S. of Mass"—We know of no machine for making wrought nails. We shall attend to your other request next week.

"E. D. C. of Conn."—Your ideas on the subject of using globes made by India rubber for cheapness so that they may come within the reach of working people are noble. We should be happy to see you execute the same. Gutta Percha is now used in England for this purpose. We are not aware of any globes being made of india rubber, but we believe that Goodyear manufactures maps of it.

"A. S. of N. Y."—Chatterton's claims are "the placing the inner extremity of each paddle so as to project beyond the inner termination of the one opposite and the said inner extremities being at such a distance as to admit the passage of water between them." He limits his claims to this particular arrangement of the paddles.

"J. C. of Vt."—Carbonic gas will be found to be a far more costly fuel than coal and the sulphate of lime would be but an unproductive salt. Without saying what form of an engine is best, let us merely state that experience is the best judge. Mere theory is not a true guide, but when theory and practice go hand in hand something of utility may be expected. The more simple the contrivance of the Railroad wheels, the more likely to be beneficial.

"R. L. of N. Y."—We have not been able to get any of the Gutta Percha yet, but we have no hesitation in saying that it will answer your purpose well.

"E. H. of Mass."—Your cream cylinder is somewhat novel, but you must remember that the degree of heat or cold in the ice chamber, is the grand ruler of the whole contrivance and beside, water in the outer cylinder would be of little benefit, as it is a good conductor of heat. If it was packed with saw dust you would have a more effectual and portable non conductor. A pastry baker can form the best conception of its utility, and if beneficial and profitable, we say get a patent.

"E. V of N. Y."—Your opinions regarding the superiority of the screw over the paddle wheel, have yet to be proven. It is true that for war steamers the screw has received the commendation of the naval committee appointed by the British government, but for all that we must have stronger evidences of its superiority for general purposes than either the Sarah Sands or Great Britain.

LITERARY NOTICES.

A New Magazine.

We have received the first number of a new monthly, which seems to outvie in splendor almost every periodical of its kind now published. It is called "The Union Magazine," and is published by Israel E. Post, formerly publisher of the "Columbian," which attained so much celebrity under his management, and we wish him equal success in his new enterprise Price $3 per annum.

Woman: her Education and Influence.

Those enterprising publishers Messrs. Fowlers & Wells, have just issued a very neat little work, bearing the above title, which every female, young or old, (for "none are too old to learn,") should possess. It is beautifully illustrated with engravings, and contains 192 pages, printed on fine paper.

They can be had at this office, or we can furnish them by mail Price 40 cents each.

Chemistry: its Application to Agriculture, &c.

A very neat little pamphlet, by Professor Liebig, and just published by Fowlers & Wells, price 20 cents. A useful work for farmers. Orders received at this office.

Ranlett's Architect.

Number nine of this splendid work is now on our table. Much as we have admired the former numbers of this work, the increasing beauty of each successive number leads us to bestow our warmest praises upon the skill and taste of its scientific author, and what we much admire too, is the sound and generous advice to journeymen tradesmen, mixed with historic relations of the rise and progress of the different styles of architecture. The present number embraces beautiful drawings perspective and sectional, of cottages in the Roman Gothic style together with specifications and full estimates. Price 50 cents.

The American Architect.

The second number of this neat work is issued and it promises to be useful and well worthy of a great patronage. There is one object to which we would direct the attention of designers, viz., the most substantial, neat and economical houses for mechanics. It is a most desirable object for every industrious man to be lord of his own castle, but there never can be a possibility of mechanics or journeymen ever being able to possess a house that would cost either $3000 or $2000. We hope to see the American devote some attention to this. The price of the American Architect is within the reach of all. 25 cents per number

ADVERTISEMENTS.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the following rates:

One square, of eight lines one insertion,	$ 0 50
" " " two do.,	75
" " " three do.,	1 00
" " " one month,	1 25
" " " three do.,	3 75
" " " six do.,	7 50
" " " twelve do.,	15 00

TERMS:—CASH IN ADVANCE.

GENERAL AGENTS

FOR THE SCIENTIFIC AMERICAN.

New York City,	Geo. Dexter.
" "	Wm. Taylor & Co.
Boston,	Messrs. Hotchkiss & Co.
Philadelphia,	Stokes & Brother.
Boston,	Jordon & Wiley.

LOCAL AGENTS.

Albany,	Peter Cook.
Baltimore, Md.,	S. Sands.
Cabotville, Mass.,	E. F. Brown.
Concord, N. H.	Rufus Merrell.
Fall River, Mass.	Pope & Chace
Hartford, Ct.,	E. H. Bowers.
Lynn, Mass,	J. E. F. Marsh.
Middletown, Ct.,	Wm. Woodward.
Norwich, Ct.,	Safford & Parks.
New Haven, Ct.,	E. Downes.
New Bedford, Mass.,	Robinson, Parsons & Co.
Newark, N. J.,	J. L. Agens.
Newark, N. J	Robert Kashaw.
Providence, R. I.,	H. & J. S. Rowe.
Rochester, N. Y.	D. M. Dewey.
Springfield, Mass.,	Wm. B. Brocket.
Salem, Mass.,	L. Chandler.
Saco, Me.,	Isaac Crooker.
Troy, N. Y.,	A. Smith.
Taunton, Mass.,	W. P. Seaver.
Williamsburgh,	J. C. Gander.
Dover, N. H.	D. L. Norris.

CITY CARRIERS.

Clark Selleck, Squire Selleck.

Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor.

Mechanics Mutual Protection.

☞ A GRAND DEMONSTRATION of the M. M. P. of the U. S. will be held at Buffalo, N. Y., on Thursday afternoon, 22d July, 1847, at 2 o'clock.—The members of the several Protections will meet at Protection Hall, Seneca street, at 1 o'clock, P. M. where they will be formed into line for procession. After marching through the principal parts of the city, they will be dismissed to meet again at 6 o'clock, P. M., at the same place, for the purpose of hearing addresses, &c.

A general invitation is extended to all brothers of the Order.

By order of Committee on Celebration,

j17 JOHN P. HALL, Chairman.

BOOKS! BOOKS!!

☞ We would inform those who are desirous of procuring the New Series of valuable and interesting publications now issuing by Messrs Fowlers & Wells, that we have made arrangements with them whereby we can furnish their works at Publishers' prices.

JUST ISSUED.

Matrimony—Hints on selection of companions	Price 25 cents.
Fascination, or the Philosophy of Charming	40 cents.
Woman—her education and influence	40 cents.
Chemistry—its various new and novel applications	20 cents.
Lectures on the Philosophy of Mesmerism	25 cents.
Phrenological Almanac,	per dozen, 50 cents.

The above works may all be sent by mail.

Address, post paid,

MUNN & CO., Publishers,

j17 128 Fulton street, N. Y.

SMITH'S Improved Electric Machines.

☞ We have received a new lot of Smith's Magnetic Machines, which far surpass any we have ever before offered to the public. They are put up in much neater shape and better adapted to medical purposes than any that have ever been sold in this city previous to the recent improvements in these machines.

For particulars relative to the wonderful cures performed by these truly wonderful machines, we would refer you to the inventor, who has original letters from those cured, that he would be pleased to show at his office.

Price $12, neatly put up in mahogany cases, with a book of explanation to accompany.

Orders from any part of the United States, promptly attended to. Address

j3 tf MUNN & CO. (post paid) New York.

To Builders and Hardware Dealers.

☞ We would inform those who deal in or have occasion to use DOOR LATCHES in the construction of buildings, that we have just received a large lot of Mortice Latches, which we can furnish at a less price than the original cost to manufacture them. They are of a beautiful pattern and some of them of an entirely new style They may be had in any quantity, by application at this office. MUNN & CO. 128 Fulton st.

Engraving on Wood

NEATLY AND PROMPTLY EXECUTED AT the Office of the Scientific American, 128 Fulton st, three doors from the Sun Office. Designs DRAWINGS of all kinds for PATENTS, &c., also made as above, at very low charges,

Lap-welded Wrought Iron Tubes

FOR TUBULAR BOILERS,

From 1 1-4 to 6 inches diameter, and any length, not exceeding 17 feet.

THESE Tubes are of the same quality and manufacture as those extensively used in England, Scotland, France and Germany, for Locomotive, Marine and other Steam Engine Boilers.

THOMAS PROSSER, Patentee,

d26 28 Platt street, New York.

A LITERARY AND FAMILY PAPER.

THE YANKEE BLADE.

A Home Journal and Fireside Companion,

DEVOTED TO

LITERATURE, EDUCATION, MORALS, FUN, NEWS, &c.

Published every Saturday at $2 per annum

☞ This Literary and Family Journal having during the past six years, met with the most brilliant and unexpected success, numbering its subscribers by thousands, in almost every quarter of the Union,—the Publishers, grateful for the many favors shown to them, have determined to make such improvements in its character, as will greatly enhance its attractiveness and value, and render it worthy of still higher applause. For this purpose they have just purchased at much expense from the foundry of Mr. S. N. Dickinson, several founts of new Scotch cut type, with which the paper has been dressed throughout in a style of surpassing elegance and beauty, while its size has been greatly enlarged, and various other improvements introduced, making it one of the best and most attractive newspapers in the Union.

Among other leading features, the Blade will contain from ONE to FOUR of the

Richest and most Interesting Stories of the Day.

Not only original, but gems of the European and American Magazines, and in all cases a preference will be shown to such as can be published entire in a single paper. In addition its columns will be stored with POPULAR ESSAYS BY ABLE WRITERS, Choice and beautiful Poems, Gleanings from New Works, Selections from Foreign Journals, Mirth-creating Sketches, "Whittlings," Jokes, Scraps, News Items, and every thing else that can give zest and piquancy to the feast.

In brief, our object will be to render it an agreeable, entertaining and ever welcome Family Visitor, brimming always with INSTRUCTION and AMUSEMENT, and especially desirable to the FAMILY CIRCLE. MATHEWS, GOULD & CO.

Publishers, 138 1-2 Washington st., Boston, Mass.

☞ J. A. Tuttle & Co., 116 Nassau st. N. Y.; Stokes & Brother, Arcade, Philadelphia; and William Taylor, Baltimore, Md., are Agents for the Blade. j26

Plumb and Level Indicator

THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent. It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S. by Express.

For sale, wholesale and retail, at this office. Address MUNN & CO (post paid) ☞ Price $1 single A discount to dealers. m13 tf

PATENT AGENCY AT WASHINGTON.

ZENAS C. ROBBINS,

Mechanical Engineer and Agent for procuring Patents.

WILL prepare the necessary Drawings and Papers for applicants for Patents, and transact all other business in the line of his profession at the Patent Office. He can be consulted on all questions relating to the Patent Laws and decisions in the United States or Europe. Persons at a distance desirous of having examinations made at the Patent Office, prior to making application for a patent, may forward (post paid, enclosing a fee of five dollars) a clear statement of their case, when immediate attention will be given to it, and all the information that could be obtained by a visit of the applicant in person, promptly communicated. All letters on business must be post paid, and contain a suitable fee, where a written opinion is required.

Office on F street opposite Patent Office.

He has the honor of referring, by permission, to Hon. Edmund Burke, Com. of Patents; Hon. H. L Ellsworth, late do; H. Knowles, Machinist, Patent Office; Judge Cranch, Washington, D. C.; Hon. R. Choate, Mass., U. S. Senate; Hon. W. Allen, Ohio, do; Hon. J. B. Bowlin, M. C. Missouri, Hon. Willis Hall, New York; Hon. Robert Smith, M. C. Illinois; Hon. S. Breese, U. S. Senate; Hon. J. H. Relfe, M. C. Missouri; Capt. H. M. Shreve, Missouri. j23

GENERAL PATENT AGENCY.

REMOVED.

THE SUBSCRIBER has removed his Patent Agency from 12 Platt to 189 Water street.

The object of this Agency is to enable Inventors to realize something for their inventions, either by the sale of Patent Goods or Patent Rights.

Charges moderate, and no charge will be made until the inventor realizes something from his invention.

Letters Patent will be secured upon moderate terms. Applications can be made to the undersigned, personally or by letter post paid.

m8 3m* SAMUEL C. HILLS, Patent Agent.

AMERICAN HARDWARE.

THE SUBSCRIBER having been engaged in selling American Hardware on commission for 7 years, solicits consignments from manufacturers, and will refer to those who have employed him the above number of years. SAMUEL C. HILLS,

m8 3m* 189 Water st.

AGRICULTURAL TOOLS.

INVENTORS and Makers of superior Agricultural Implements are notified that the subscriber will sell such articles on commission, and make prompt returns. SAMUEL C. HILLS,

m8 3m 189 Water st.

© 1847 SCIENTIFIC AMERICIAN, INC

CURIOUS ARTS

Gutta Percha.

We last week published a sketch of the dissovery and nature of this remarkable oriental substance and we now propose to describe some more of its very numerous uses and mixtures.

Its principal uses are for artificial fuel, mastics and cements. It is highly combustible being chiefly composed of carbon and hydrogen, but it requires a high degree of heat to inflame it, and it is not injuriously or otherwise affected by any known degree of atmospheric heat.

It is soluble in essential oils but it resists to a great extent the action of grease.

It readily mixes with paints, pigments and most other coloring matters, and it is a repellant of cold water and damp, but it can be softened by hot water and exposure to steam without further treatment and be kneaded and rolled out into any shape, however thin, and when dry it is free from all stickiness, and is flexible, tenacious and elastic. It is also impermeable to the atmosphere and when pure is nearly inodorous and what is most remarkable, cannot be injured by use (except as a fuel) and after it has been long used it can be recovered and manufactured anew. For mastics and cements, the *gutta perchu* or *guta tuban* as it is sometimes called, must be freed first from its native fibrous matter by passing it frequently through a cleansing machine, and then subjecting it to a kneading machine, like one used in india rubber manufacture, and while passing through it may be mixed by the following modifying ingredients. To give it a greater elasticity than naturally belongs to it, portions of india rubber and sulphur are added as it goes through the kneading machine, in about two parts india rubber and 1 of sulphur to 6 of gutta percha, but to affect the amalgamation of these substances a degree of 150° of heat is required. If any color is intended to be given to the mixture, it is mixed in the kneading and it may be improved in smoothness by adding some French chalk, or if it is wanted to be rough, it is mixed with ground emery. In this state it may be manufactured by moulding, stamping, embossing, casting or any other process for giving figure or form to plastic substances, such as into glass and picture frames, mouldings and architectural ornaments, pannellings, mosaics or for buttons, studs, bracelets armlets, garters, bridles, bands, &c. It may be also used sulphurized, especially in coverings for beds and cushions and for pictures in relief, also for billiard table cushions, or as a substitute for metalic springs, parts of machinery and atmospheric railway valves, also for driving bands for machines, for bowls of printing and embossing machines. Gutta percha in combination with wood-dust, leather-dust, hair, bristles, and oakum, cut small, makes good cement for roofing, paving, sheathing and a number of other purposes.

It is applied in making busts, by grinding the above composition into powder and filling the mould with the same, and by heat making it tough enough to be pressed into all parts of the mould. Or if it is employed to raise figures in relief, it is softened and laid upon the leather or cloth upon which you want the figure and then stamped, when the gutta percha that is stamped (pressed) sticks to the cloth and exhibits an exact copy in relief, bold and durable, while the unpressed stuff sticks not at all.

Gutta percha may be made into sheets by floating it in a solvent state upon plates of glass or any other smooth surface, using it at a temperature that will easily spread over the whole plate, and then leaving it to cool and dry. These plates may have patterns on them which will be transferred to to the sheets of the percha. It may also be applied in its fluid state to the saturation of coidage in order to increase its strength and render it waterproof, also as a size for the stiffening of silks and other fabrics, and also in a liquid state it can be mixed with colors for printing on silk, cotton and other fabrics.

Mosaic Gold.

For the composition of this peculiar alloy of copper and zinc, called also *Or-molu*, a patent was obtained some years since in England. Equal quantities of copper and zinc are to be melted at the lowest temperature that copper will fuse, which being stirred together so as to produce a perfect admixture of the metals, a further quantity of zinc is added in small portions, until the alloy in the melting pot becomes of the color required. If the temperature of the copper be too high, a portion of the zinc will fly off in vapor, and the result will be merely spelter or hard solder; but if the operation be carried on at as low a heat as possible, the alloy assume first a brassy yellow color; then, by the introduction of small portions of zinc, it will take a purple or violet hue, and will ultimately become perfectly white which is the appearance of the proper compound in its fused state. This alloy may be poured into ingots; but as it is difficult to preserve its character when remelted, it should e cast directly into the figured moulds. The patentees claim the exclusive right of compounding a metal consisting of from 52 to 55 parts of zinc out of 100.

Sublime Model for an Artist.

The last number of the Westminster Review gives the following curious anecdote:—

The celebrated equestrian colossal statue of Peter the Great, in which the figure of the emperor is eleven feet high and that of the horse seventeen, stands upon a block of fifteen hundred tons in weight. It represents the Emperor rushing up a rock to the brink of a precipice, trampling upon a serpent, and pausing in an attitude of triumph. As soon as the artist had formed the design, he found the utter impossibility of representing a man and an animal in so striking a position, without having before him a horse and rider in the attitude desired. General Melissino, an officer who had the reputation of being the boldest and most expert rider of the day, hearing of this difficulty of the artist, offered to ride one of Count Orloff's best Arabians to the summit of a steep artificial mound formed for the purpose, accustoming his horse to gallop up to it, and to halt suddenly, with his forefeet raised, pawing the air, over the brink of a precipice. This dangerous experiment was frequently repeated in the presence of several spectators and of the artist, who sketched the various movements and parts of the group from day to day, and thus was produced one of the finest and most correct statues of the kind in Europe.

Important Discovery.

Every one who has ever been bitten by a musquito—and who has not—will be glad to learn that a sovereign preventive against the vicious attacks of that blood-thirsty insect has at length been discovered. Like all other great discoveries and inventions it is very simple. Buy a small quantity of *pennyroyal*—it is best as prepared by the Shakers—put it in a box with a tight cover, and when night comes and the hungry musquitoes are flying about seeking whom to devour, uncover your box, and they will not venture into the room where the pennyroyal (blessings on the old lady who first discovered the invaluable herb) may be. They will hover about the open window, buzzing all sorts of vengeance and whetting their nippers, but they will not dare to come in.

Gum Elastic.

Dumas, in his "Chemistry, applied to the arts and manufactures" in speaking of Caoutchouc, says, "Caoutchouc mixed with four times its weight of sulphuret of carbon, softens, and then if 16 parts of sulphur be added, and the mixture frequently stirred, there is obtained, after the lapse of some days, a milky liquid, which leaves on evaporation a layer of transparent and elastic caoutchouc."

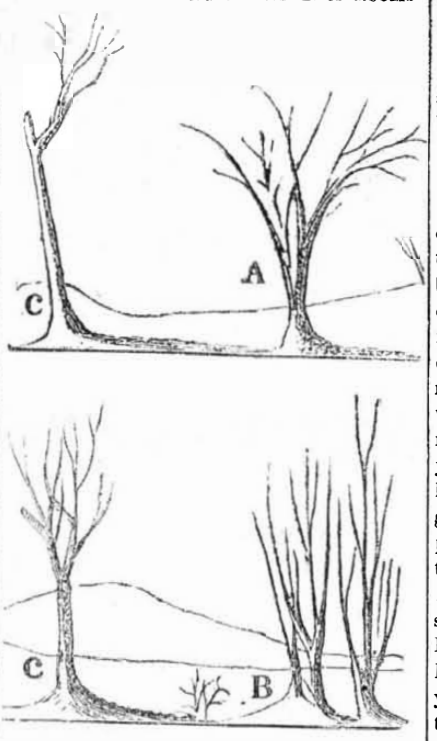
Great at Figures.

Peter M. Deshon of this city, in a letter to the editor of the Boston Journal, says he can give the sum total of a column of figures 1000 length and 10 in breadth, in three seconds, commencing on the left hand to place the answer down. No matter how long the column is, or how broad, it can be done as quickly as a small one. He says he can impart a knowledge of his rules in one half hour.

THE ART OF PAINTING.

(Continued from No 42.)

LANDSCAPE PAINTING ON WALLS OF ROOMS



The shores of capes and islands, and rocks in general, on the first distance, or about the shores of the 2d and 3d distances are painted with stone brown, (a mixture of yellow ochre, venitian red and black in such proportions that neither of those colors shall appear to predominate in the compound.) When this color is applied to the rocks or shores of the third or fourth distances, it is to be mixed with sky-blue in different proportions according to the distance, being reduced to a very pale color, on the fourth. This rule also applies to the shading and heightening of objects. Rocks are usually shaded with black or blue black, and heightened with horizon red, reduced with sky blue in the distances, as before mentioned. The water immediately under the capes and islands on the shores of lakes and rivers, must be shaded with a color composed of blue black reduced to sky blue. This color is diluted more than usual, and brushed on the work very slightly with a cutting brush, the brush being drawn lightly so as not to apply the color in full. The brush must be drawn steadily, horizontally, and this shading is made deeper where the shore is covered with trees, or other dark objects; the object of the shading being to represent partially and faintly the reflection of the shores and trees in the water. If a calm and still water is to be represented, however, the rocks, trees and other objects on the shore must be represented in an inverted position, in their proper colors, but subsequently rendered partially obscure by having a thin, transparent wash of the shading color, slightly brushed over them. The process next in order, is that of drawing the stocks and branches of the nearest trees, those of the first distances on the foreground. These are drawn with a cutting brush, with paint of a light slate color (a mixture of black and white, slightly tinged with venitian red.) The trees usually represented on this ground, are elms, oaks, hickories and maples; and should be so arranged in the design as to set off the distant objects to the best advantage, and fill up such spaces on the walls, as could not be otherwise conveniently occupied. The location of these trees should be anticipated in the formation of the foreground, as it is natural for large trees to occasion swells of land about their bases. The stocks and branches of these trees are then shaded on the sides opposite the principal window or light of the rooms, with black or a mixture of black and red; and the sides towards the light, are heightened with horizon red. Both the shading and heightening are applied with a cutting brush, and dexterously graduated from the sides to the centres, in waved or short irregular stripes, resembling the rough bark of the trees, (a few samples of the skeletons of trees as they are usually drawn and appear before the foliage is applied, are shown in the engraving, and may be thus designated: A is an elm, which is naturally located in the vicinity of water scenes. B a maple, most conveniently located about the corners of rooms, where other objects cannot be favorably represented. C C, black oaks, as they are frequently seen when standing in open ground, though very different from their usual appearance in forests. In our next we shall present engravings on the same outlines, but with the same trees loaded with foliage.

(To be continued.)

Advice on the Use of Spectacles.

Do not adopt spectcles either unnecessarily or too soon. When in reading small print, or threading a needle, it becomes necessary to bring them near a candle, or beyond it, the eyes require assistance of glasses and will be injured without them. Take great care, however, not to begin with such as magnify too much, or what are called *old sights;* but advance gradually as the vision becomes more defective, or it will be irreparably injured. If your sight has been a natural one, and you have not waited too long before taking to glasses, you will find a focus of 36 inches proper to commence with; from that you descend to 30, 24, 20, 18, 16, and so downward to 10. If this gradation be attentively followed, the sight may be preserved till extreme old age. Do not, therefore, precipitate these changes, lest you outrun the recources of art, and find your sight irretrievably impaired. Be careful to buy your spectacles of regular opticians, not of itinerant venders.

Splendid Cars.

The Hartford and New Haven Rail Road Company have recently put on their Road two of the most splendid Cars in the United States. The cost of the two was five thousand dollars. They are furnished beautifully inside.

THE NEW YORK
SCIENTIFIC AMERICAN:

Published Weekly at 128 Fulton Street, (Sun Building,) New York, and No. 13 Court Street, Boston; the principal office being at New York.

BY MUNN & COMPANY.

The SCIENTIFIC AMERICAN is the Advocate of Industry and Journal of Mechanics and other Improvements: as such its contents are probably more varied and interesting, than those of any other weekly newspaper in the United States, and certainly more useful. It contains as much interesting Intelligence as six ordinary daily papers, while for *real benefit*, it is unequalled by any thing yet published Each number regularly contains from THREE to SIX ORIGINAL ENGRAVINGS, illustrated by NEW INVENTIONS, American and Foreign,—SCIENTIFIC PRINCIPLES and CURIOSITIES,—Notices of the progress of Mechanical and other Scientific Improvements Scientific Essays on the principles of the Sciences of MECHANICS, CHEMISTRY and ARCHITECTURE,—Catalogues of American Patents,—INSTRUCTION in various ARTS and TRADES, *with engravings*,—Curious Philosophical Experiments,—the latest RAIL ROAD INTELLIGENCE in EUROPE and AMERICA,—Valuable information on the Art of GARDENING, &c. &c.

This paper is especially entitled to the patronage of MECHANICS and MANUFACTURERS, being devoted to the interests of those classes. It is particularly useful to FARMERS, as it will not only apprise them of IMPROVEMENTS in AGRICULTURAL IMPLEMENTS, but INSTRUCT them in various MECHANICAL TRADES, and guard against impositions. As a FAMILY NEWSPAPER it will convey more USEFUL Intelligence to children and young people, than five times its cost in school instruction.

Being published in QUARTO FORM, it is conveniently adapted to PRESERVATION and BINDING.

TERMS.—The Scientific American is sent to subscribers in the country at the rate of $2 a year, ONE DOLLAR IN ADVANCE, the remainder in 6 months. Persons desiring to subscribe, have only to enclose the amount in a letter, directed to

MUNN & COMPANY,

Publishers of the Scientific American, New York.

☞ Specimen copies sent when desired. All Letters must be POST PAID.

© 1847 SCIENTIFIC AMERICIAN, INC